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AUTHOR Wesson, Carl E.
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 Instrumentation Technicians: *Job Analysis: *Job
 Skills: Libraries: Library Personnel: Lumber
 Industry: Manufacturing: *Occupational Information:
 Petroleum Industry: Plastics: Political Science:
 Repair: Social Sciences: Sociology: *Task Analysis:
 Woodworking

IDENTIFIERS Boats: Paper and Pulp Occupations: Shipbuilding
 Industry: Textile Industry

ABSTRACT

This second in a series of task analysis inventories contains checklists of work performed in twenty-two occupations. Each inventory is a comprehensive list of work activities, responsibilities, educational courses, machines, tools, equipment, and work aids used and the products produced or services rendered in a designated occupational area. The inventories can be used to set up work programs, write job descriptions, or be given to workers to check appropriate items in a self-inventory of their work. The information collected by use of the inventories may be helpful to job developers, counselors, and training and placement personnel. It also may be used in the development of curriculums for vocational or apprenticeship training. Occupations covered in this inventory series include aircraft and aerospace manufacturing: building and construction trades: chemical processing: economics and political science work: electrical equipment, apparatus, and devices manufacturing: electronic components, equipment, and apparatus manufacturing: plastics manufacturing: food processing: history, sociology, and anthropology work: instruments and apparatus manufacturing: knitting mill work: library work: logging: paper and paperboard converting: petroleum refining: sawmill and planing mill work: ship and boat building and repairing: textile mill work: veneer and plywood mill work: woodworking. (KC)

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Task Analysis Inventories, Series II



U.S. Department of Labor
Ray Marshall, Secretary
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Ernest G. Green
Assistant Secretary for Employment
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Preface

This is the second of a series of task analysis inventories, the first of which was printed in 1973.¹ The inventories are adaptations of the Job Information Matrix System (JIMS) developed during research conducted under contract with the Department of Labor and directed by Dr. Dale Yoder of the Bureau of Business Research at the Long Beach State University, Long Beach, and Dr. C. Harold Stone of the California State University, Los Angeles. The primary objective of the research was to investigate and determine the cost and effectiveness of various techniques and procedures of collecting job analysis data. As a result, JIMS has as a nucleus an organization of standardized tasks found in a particular activity or area of work.

Manpower program staffers have used Series I for purposes such as identifying tasks, developing jobs, and preparing job descriptions; providing information to counselees and trainees on specific tasks associated with different kinds of work; and developing training programs fostering entrance into fields of work that offer maximum employment opportunities.

Task Analysis Inventories was produced by the U.S. Employment Service, Division of Occupational Analysis. Adaline Padgett of the Division provided planning and technical coordination. Carl E. Wesson, Occupational Analyst, California Occupational Field Center (J. Edmond Phillips, Supervisor), drafted the document.

¹*Task Analysis Inventories* (Washington: U.S. Department of Labor, Manpower Administration, 1972).

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Introduction

USES OF INVENTORIES

The inventories provide a tool for identifying significant tasks and worker requirements. Data were obtained from job analysis studies, currently published occupational literature, professional associations, trade unions, and public and private sector organizations and establishments. The inventory is a comprehensive list of work activities, responsibilities, educational courses, machines, tools, equipment, and work aids used and the products produced or services rendered in a designated area. The user, after considering all of the items listed can determine those that are applicable. This is the second in a series of inventories to be developed for designated areas in the economy. Additional inventories will be developed and published in the future.

The inventories can be adapted to meet the various needs of work programs. For example, the user may become familiar with the lists of tasks in advance of a study then use the items as a guide to interviewing workers, supervisors, personnel management staff, or others from whom the user is obtaining job information. In some cases, the inventories may be given to workers to check appropriate items in a self-inventory of the work they perform.

The information resulting from use of the inventories may have relevance in activities other than basic job analysis. The inventories offer a quick method for preparation of job descriptions or assessing the need for, or feasibility of, job restructuring without undertaking detailed job analysis studies. If restructuring is performed, the items from the list may then serve as the framework for task identification and analysis, the basis for job restructuring.

Information collected from both the lists of tasks (activities) and the lists of machines, tools, equipment and work aids can be used to determine abilities and knowledges required for a specific job, which must be considered in the development of curriculums for vocational or apprenticeship training.

The categories relating to educational requirements and courses that would develop workers' skills for performing the job duties, licensing requirements, and other similar information will be of assistance to counselors, job developers, training, and placement personnel.

For the lists to reflect complete information about the job, the users should always be encouraged to write in additional tasks or other pertinent items. Users should also be cautioned to analyze jobs as they exist and not attempt to make them fit the items.

ARRANGEMENT OF THE INVENTORIES

The task statements are not limited to any level of performance and may include activities that range from high-level supervision to elementary work. Some types of work exist in many fields of endeavor. Separate inventories have been prepared to represent these universal tasks (activities), such as "Administrative and Management" and "Clerical" (series I). In addition, many professional disciplines, such as Engineers, Economists, Mathematicians, and Scientists are utilized in both the public and private sectors. TASK ANALYSIS INVENTORIES have been, or are being, prepared for these disciplines such as "ARCHITECTURAL AND ENGINEERING WORK" (series I), "MATHEMATICS AND PHYSICAL SCIENCES WORK" (series I) and "PSYCHOLOGICAL RESEARCH."

The tasks, as well as additional items on the lists, are not arranged in alphabetical or chronological order, so the user will need to read and consider all the items.

Procedures for Completing Inventory Items

- Step 1. Select the task inventory which is pertinent to the job being studied.
- Step 2. Prepare a copy of each of the pages for the appropriate area of work.
- Step 3. Indicate in the upper right hand corner of the first page of the selected inventory the title(s) by which the job is commonly known.
- Step 4. Read each of the items listed on the inventory.
- Step 5. Indicate by an "X" in the box on the right of the line for each item, those that are pertinent to the job being studied.
- Step 6. Write in additional items or tasks found in the job but not listed in the inventory.

The items checked on the inventory may be used to provide the basis for preparation of a job description, in which case it may be desirable to code the job, according to the classification structure contained in the *Dictionary of Occupational Titles*² developed by the U.S. Employment Service. Procedures for this purpose will be found on pages 27 and 28 of the *Handbook for Analyzing Jobs*, under the heading Procedure for Assigning and Recording Code.

In studying some jobs, the user may refer to more than one inventory. For example, a job in department store management may require reference items in two inventory lists — "Merchandising Work" and "Administrative and Management Work."

Among the inventory categories, union affiliation information is not consistently supplied.

²*Dictionary of Occupational Titles* (4th ed.; Washington: U.S. Department of Labor, Employment and Training Administration, 1977).

AIRCRAFT AND AEROSPACE MANUFACTURING

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Supervises, and coordinates activities of, workers engaged in:

- Performing overall craftsmanship work to aid in developing and proving engineering design on prototype aero-astro products
- Laying out and fabricating tooling for use in:
 - Producing of fabricated parts for product
 - Bench assembly operations
 - Final assembly operations
- Machine fabrication or product or system parts
- Hand fabrication or rework of product or system parts
- Bench assembly or parts into units or subassemblies
- Structural assembly of product
- Installation of a specific system in product
- Installation of propulsion power plant
- Installation of power plant auxiliaries
- Inspection of structural assemblies
- Inspection and checkout of product or installed systems
- Testing of materials and structural assemblies
- Other (specify)

Plans:

- Manpower requirements
- Machine requirements
- Material requirements
- Tooling requirements
- Other (specify)

- Prepares work and worker schedules
- Assigns workers to specific duties
- Gives work directions to workers concerning assigned duties
- Interprets specifications, work orders, and technical data for workers
- Advises workers on methods and procedures for solving work problems
- Reviews inspection and test reports on materials, assemblies, or products
- Coordinates work activities with those of other departments
- Enforces worker compliance with established procedures, regulations, and safety rules
- Requisitions materials, tooling, and equipment
- Requests repair or maintenance on tooling and machinery

Trains workers in:

- Machine and equipment setup and operation
- Bench assembly operations
- Structural and final assembly operations
- Installation of systems and system components
- Inspection and checkout of systems

WHAT THE WORKER DOES—Continued

- Inspection and final checkout of finished product . . .
- Evaluates worker performance
- Initiates personnel actions, such as promotions, discharges, or disciplinary actions
- Resolves employee grievances or submits them to higher authority
- Other (specify)

Reads or reviews:

- Engineering drawings
- Design modification change sheets
- Material processing orders
- Tooling specifications
- Tooling requirements
- Fabricating specifications
- Fabricating schedules
- Bench assembly specifications
- Bench assembly schedules and procedures
- Structural assembly specifications
- Structural assembly procedures
- System installation specifications
- Inspection specifications and procedures
- Test specifications and operational checkout procedures
- Other (specify)

Lays out:

- Structural parts of product on lofting floor
- Reference points and lines on material
- Contour and angle requirements
- Fabricating data on part
- Patterns, templates, or design on material
- System and plans for installation in product structure
- Other (specify)

Constructs or makes:

- Tooling required for fabrication and assembly operations
- Wooden mock-up of prototype products
- Patterns and templates for laying out, fabricating, or checking measurements of parts
- Fixtures, jigs, and holding devices required for assembly activities
- Models for testing aerodynamics of product
- Forms for producing fabricating dies
- Other (specify)

- Sets up machines for operation by other workers
- Sets up and operates metal working machines
- Controls operation of automated machines
- Controls equipment to process materials
- Tends preset-up automatic machines
- Operates preset-up machines
- Assists worker to operate machine or equipment
- Other (specify)

Installs, aligns, and secures:

- Forming rolls
- Stops
- Guides
- Fixtures
- Cams
- Gears
- Shear blades
- Saw blades
- Machine attachments
- Duplicating machine attachments
- Tools in toolholders or machine heads
- Workpiece in fixture, jig, holding device, or machine
- Other (specify)

Moves machine or equipment controls to:

- Start or stop operations
- Set temperature, pressure, or time cycle specified
- Set length of stroke on hydraulic ram
- Feed tool or die onto workpiece
- Adjust machine or equipment operations
- Reset machine guides, stops, or roll clearances
- Hoist, move, or position workpiece, die, or tooling
- Other (specify)

Monitors:

- Operation of machine from control console
- Panelboard gages and meters for specified machine or equipment operation
- Functional operation of machines
- Machine operations controlled by on-line computer, numerical control, or tape
- Closed circuit television receiver showing machine operations
- Other (specify)

Examines part for defects in fabrication or manufacture

- Measures parts for conformance with dimensional specifications

- Hand fabricates parts, using hand and power tools and work aids

Handworks parts to specifications by:

- Filing
- Scraping
- Grinding
- Chipping
- Truing
- Straightening
- Lapping
- Honing
- Bending
- Bumping
- Planishing
- Polishing

WHAT THE WORKER DOES—Continued

Buffing	<input type="checkbox"/>	Furnishings in interior of structure	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Assembles:		Inspects:	
Components of system equipment in units or subassemblies	<input type="checkbox"/>	Materials	<input type="checkbox"/>
Fabricated sections of:		Fabricated or machined parts	<input type="checkbox"/>
Air frame	<input type="checkbox"/>	Subassemblies	<input type="checkbox"/>
Fuselage	<input type="checkbox"/>	Structures	<input type="checkbox"/>
Tail structure	<input type="checkbox"/>	Systems	<input type="checkbox"/>
Rocket or missile housing	<input type="checkbox"/>	Products	<input type="checkbox"/>
Space craft module	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Structural sections of product into complete product structure	<input type="checkbox"/>	Insures that inspected items meet specifications for:	
Other (specify)	<input type="checkbox"/>	Quality workmanship	<input type="checkbox"/>
Positions parts, materials, or housing unit in:		Assembly	<input type="checkbox"/>
Holding device, fixture, or jig	<input type="checkbox"/>	Installation	<input type="checkbox"/>
Specified relationship to other parts or material	<input type="checkbox"/>	Conformance with regulatory agency directives	<input type="checkbox"/>
Specified alinement with other parts	<input type="checkbox"/>	Completeness and accuracy	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Fit and relationship of parts	<input type="checkbox"/>
Verifies that parts or material meet specifications for:		Conformance with engineering design and changes	<input type="checkbox"/>
Fit	<input type="checkbox"/>	Ease and freedom of movement of parts	<input type="checkbox"/>
Alinement	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Tolerances and clearances	<input type="checkbox"/>	Measures material, parts, or assemblies for specified:	
Freedom of movement	<input type="checkbox"/>	Dimensional specifications, such as:	
Tension between parts	<input type="checkbox"/>	Width	<input type="checkbox"/>
Contour and angle of material	<input type="checkbox"/>	Length	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Height	<input type="checkbox"/>
Secures parts or materials together during assembly using:		Thickness	<input type="checkbox"/>
Screws	<input type="checkbox"/>	Radii	<input type="checkbox"/>
Pins	<input type="checkbox"/>	Flatness	<input type="checkbox"/>
Dowels	<input type="checkbox"/>	Alinement	<input type="checkbox"/>
Solder	<input type="checkbox"/>	Tolerances and clearances	<input type="checkbox"/>
Bolts and nuts	<input type="checkbox"/>	Shape and contour of material	<input type="checkbox"/>
Bonding agents	<input type="checkbox"/>	Coating thickness	<input type="checkbox"/>
Cement	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Cotter Keys	<input type="checkbox"/>	Tests:	
Rivets	<input type="checkbox"/>	Materials for conformance with physical characteristic specifications	<input type="checkbox"/>
Keyway press	<input type="checkbox"/>	Parts or structures for internal defects, structural flaws, or material fatigue	<input type="checkbox"/>
Laminating press	<input type="checkbox"/>	Subassemblies or system units for specified functional performance	<input type="checkbox"/>
Welds:		System installations for conformance with operational standards	<input type="checkbox"/>
Flash welds	<input type="checkbox"/>	Instrument readings on systems with testing equipment readings	<input type="checkbox"/>
Spot welds	<input type="checkbox"/>	Installed systems under simulated operating conditions	<input type="checkbox"/>
Bead welds	<input type="checkbox"/>	Product under simulated flight conditions for specified performance	<input type="checkbox"/>
Seam welds	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>		
Installs:			
System units in structure	<input type="checkbox"/>		
System hardware, connectors, and auxiliaries	<input type="checkbox"/>		
System instrumentation	<input type="checkbox"/>		



WHAT THE WORKER DOES--Continued

- Rejects or orders rework for items with:
- Faulty workmanship
 - Coating imperfections
 - Surface defects
 - Manufacturing defects
 - Assembly defects
 - Faulty installation
 - Damaged parts
 - Missing parts
 - Loose or faulty connections
 - Structural or internal flaws
 - Malfunctioning parts
 - Electrical characteristics not meeting standards
 - System operational malfunctions
 - Assembly functional malfunctions
 - Other (specify)
- Analyzes test or inspection findings to determine rejection cause
- Prepares rework order for rejected:
- Fabricated materials
 - Machined parts
 - Assemblies or units of systems
 - Structural assemblies
 - System installations
 - Product structure
 - Other (specify)
- Prepares acceptance reports for:
- Materials meeting specified physical characteristics
 - Vendor supplied parts meeting specifications
- Assembled units or subassemblies meeting functional specifications
 - Installed system that meets operational standards
 - Finished products meeting operating performance standards
 - Other (specify)
 - Calibrates system instrumentation and control readings with standards approved by American Society for Testing and Measurement
 - Resets controls, set screws, or devices on assemblies to obtain specified functional performance
 - Disassembles system units or assemblies to locate cause of malfunction or defective part
 - Resets clearances or frees moving parts that are binding
 - Removes malfunctioning part of assembly or instrument
 - Replaces part and reassembles unit or instrument
 - Tests unit or assembly for functional performance
 - Installs unit, assembly, or instrument in system and retests system
 - Removes defective structural parts from structure or structural assembly
 - Replaces structural material or fabricates part, using tooling or piece removed as template
 - Positions and secures part in place with rivets or by welds
 - Other (specify)

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- Management
- Government Personnel
- Engineering Personnel
- Liaison Personnel
- Laboratory Personnel
- Inspection Personnel
- Department Heads
- Supervisors
- Other Supervisors
- Testing Personnel
- Workers
- Helpers
- Apprentices
- Military Personnel
- Other (specify)

EDUCATION AND TRAINING

Record an "X" to indicate education and training required.

- Elementary
- High School
- Junior College
- Technical School
- Vocational School
- Apprenticeship (see listing)

EDUCATION AND TRAINING—Continued

Military Training Other (specify)
 On-the-job Training

LICENSURE, CERTIFICATE, ETC.

Record an "X" to indicate licensure requirements.

FAA:
 Airframe and Power Plant Certificate Radiotelephone, First Class License
 Airframe Certificate Radiotelephone, Second Class License
 Power Plant Certificate Other (specify)
FCC:
 Radiotelephone and Telegraph First Class License

APPRENTICESHIP

Record an "X" to indicate apprenticeship.

Airframe and Powerplant Mechanic <input type="checkbox"/>	E/E Development Mechanic <input type="checkbox"/>
Airframe Mechanic <input type="checkbox"/>	Jig and Fixture Builder <input type="checkbox"/>
Power Plant Mechanic <input type="checkbox"/>	Makeup/Tooling Development Mechanic <input type="checkbox"/>
Flight Line Mechanic <input type="checkbox"/>	Maintenance Electronic Technician <input type="checkbox"/>
Aircraft Electrician <input type="checkbox"/>	Other (specify) <input type="checkbox"/>
Aircraft Electronic Technician <input type="checkbox"/>	

SUBJECTS AND COURSES

Record an "X" to indicate subjects and courses that develop skills for occupation.

Craft Related Subjects and Courses:	Strength of Materials <input type="checkbox"/>
Practical Arithmetic <input type="checkbox"/>	Adhesives Bonding and Composites <input type="checkbox"/>
Shop Mathematics <input type="checkbox"/>	Metal Bonding <input type="checkbox"/>
Plane Geometry <input type="checkbox"/>	Laminating Processes <input type="checkbox"/>
Machine Tool Mathematics <input type="checkbox"/>	Systems Familiarization <input type="checkbox"/>
Basic Algebra <input type="checkbox"/>	Care and Use of Measuring Instruments <input type="checkbox"/>
Basic Trigonometry <input type="checkbox"/>	Care and Use of Tools <input type="checkbox"/>
Analytic Geometry <input type="checkbox"/>	Basic Electrical and Electronic Fundamentals: <input type="checkbox"/>
Shop Trigonometry <input type="checkbox"/>	Structure of Matter and Static Electricity <input type="checkbox"/>
Introductory Calculus <input type="checkbox"/>	Ohm's Law <input type="checkbox"/>
Mechanical Drawing <input type="checkbox"/>	Magnetism and Electrical Energy <input type="checkbox"/>
Technical Drawing <input type="checkbox"/>	Electro-magnetism and Relays <input type="checkbox"/>
Elements of Blueprint Reading <input type="checkbox"/>	Induction and Transformers <input type="checkbox"/>
Blueprint Reading <input type="checkbox"/>	Capacitance <input type="checkbox"/>
Applied Science <input type="checkbox"/>	Capacitive Reactance <input type="checkbox"/>
Applied Chemistry <input type="checkbox"/>	Inductance and Inductive Reactance <input type="checkbox"/>
Applied Physics <input type="checkbox"/>	Resonant Circuits <input type="checkbox"/>
Principles of Hydraulics <input type="checkbox"/>	Light Energy <input type="checkbox"/>
Principles of Pneumatics <input type="checkbox"/>	Sound Energy <input type="checkbox"/>
Mechanical Principles <input type="checkbox"/>	Oscillators <input type="checkbox"/>
Principles of Tool Design and Engineering <input type="checkbox"/>	Basic Transistors <input type="checkbox"/>
Heat Energy and Machines <input type="checkbox"/>	
Materials and Processes <input type="checkbox"/>	
Heat Treating <input type="checkbox"/>	

SUBJECTS AND COURSES - Continued

- Vacuum Tubes
- Basic Communications Fundamentals:
 - Evolution of Communications
 - Electronic Regulated Power Supplies
 - Electromechanic Plate Supplies
 - Audio Amplifiers Theory and Testing
 - Audio Applications
 - Transmitter Theory and Oscillators
 - Buffers and Frequency Multipliers
 - Power Amplifiers
 - Modulation Methods
 - Amplitude Modulators
 - Practical Transmitter Theory
 - Antenna Fundamentals
 - Receiver Testing
 - Receiver Testing and Servicing
- Basic Navigation Fundamentals:
 - Introduction to Navigational Aids
 - Radio Range, Markers, ILS
 - Special Modulators and Detectors
 - Pulse Modulation, Reception, Counting
 - Filters and Phase Shifters
 - Integrators and Differentiators
 - Position Data Transmission
 - Control Transformers, Differentials, Resolvers
 - ADF Receivers, Loop and Sense Theory
 - Thyratron Control Systems
 - Loran
 - Electronic Altimeters
 - Omni Range Receivers
- Automatic Control Systems Fundamentals:
 - Introduction to Automatic Control Systems
 - Actuators
 - Sensing, Transducing, Data Transmitting
 - Control Circuits
 - Stabilization
- Radar System Fundamentals:
 - Introduction to Radar
 - Radar Component Functions
 - Special Circuits
 - Power Supplies and Protection Devices
 - High Power Hi-Frequency Modulators
 - Magnetrons and Antennae
 - Klystrons and AFC
 - Receiver Special Circuits
 - Special Video Circuits
 - Display Stabilization

- Antenna Stabilization
- Radar Test Equipment
- Functionally Testing Radar
- Computer Basic Fundamentals:
 - Binary Number System
 - Binary Arithmetic
 - Logic Design Techniques
 - Boolean Algebra
- Computer Concepts:
 - Digital
 - Analog
- Scale Factors, Constants, Calibration
- Computer Calibration and Testing
- Basic Computing Elements:
 - Division-Multiplication
 - Addition-Subtraction-Trigonometry
 - Functions-Integration-Differentiation
 - Rating Gyros
 - Accelerometers
 - Transducers
 - Function Generators
 - Ball-disc Integrators
- Basic Computing Circuits:
 - Amplifiers
 - Summing-Integrating
 - Feedback-Choppers-Multiplication by Variables
- Simple Computers:
 - Every Application
 - Electronic Applications
- Advanced Computers:
 - Distance
 - Rate
 - Time
 - Navigation
 - Fire Control
 - Other (specify)

- Printed Circuit Boards and Manufacture:
 - Introduction
 - Design
 - Documentation
 - Tooling and Machining
 - Plating and Etching
 - Fabrication of Plated Through Holes
 - Fabrication of Multilayer Boards
 - Fabrication of Flat Conductors
 - Component Installation
 - Quality Assurance
 - Other (specify)

SUBJECTS AND COURSES—Continued

Basic Optical Tooling:

- Function of Optical Tooling
- Fundamental Optics
- Levels
- Transits
- Telescopes
- Laser and Hydraulic Positioner
- Tool Fabrication and Routine Procedure
- Other (specify)

Electrical-Electronic Measurement:

- Basics
- Introduction
- Thevenins Theory
- Thevenins to Wheatstone Bridge
- Wheatstone Bridge
- Characteristics of Standard Resistors
- Kelvin Bridge
- Megohm Bridge
- Characteristics of Standard Cells
- Loop Analysis
- Nodal Analysis
- Y Transformation
- Algebra and Determinants
- DC/AC Transfer Standards
- AC/DC Calibration and Transfer Standard
- AC Concept
- AC Thevenin Theory
- Calibration of Precision AC Voltmeters with AC Voltage Standard
- Error Analysis
- Schering Bridge
- Capacitance Measurements
- Bridge Problems
- AC Components
- Theory and Techniques of Phase Measurements
- Other (specify)

Electromechanical Packaging Basics:

- Introduction and Specifications
- Electrical Packaging Constraints
- Electrical Design and Development
- Fabrication
- Production Units
- Laboratory Testing
- Integration and Electromechanical Instrumentation
- Environmental Testing
- Other (specify)

Antenna and Microwave Theory

- and Measurements:
- Algebraic Equations
- Simultaneous Equations and Exponents and Radicals
- Powers of Ten and Logarithms
- Trigonometric Functions and Solutions of Triangles
- Vectors and Imaginary Numbers and Vectors and Vector Algebra
- Basic Laws of Current Flow Plus Coulomb and Electrostatics
- Faraday and Electrodynamics Plus Permanent and Electromagnets
- Induction Transformers and Motors Plus Capacity and Capacitive Reactance
- Inductance and Inductive Reactance Plus Admittance, Susceptance and Conductance
- Characteristics of Resonate Circuits Plus Power-Energy into Loads
- Transmission Lines
- Impedance and Admittance Applications
- Frequency
- Maintenance, Care and Use of Sensitive Measuring Devices
- Variable Standing Wave Radio
- Attenuation
- Power
- Special Antenna Measurements
- Trouble Shooting Fundamentals
- Associated Equipment and Equipment Use and Theory
- Other (specify)

Template Layout Basics:

- Flat Pattern Layout
- Form Block Template Layout
- Sample Part Layout
- Design, Apply, Trim, and Drill Template
- Flat and Form Block Template Layout
- Use of Project Tool Manual
- Use of Information from Tool Order
- Right Angle Trigonometry
- Flat Steel Protractor Layout
- Height Gage Layout
- Height Gage Inspection
- Safety Practices
- Other (specify)

SUBJECTS AND COURSES—Continued

Airframe and Power Plant Mechanic:

Airframe Mechanic:

- Fundamentals of Aircraft Construction
- Airframe
- Rigging
- Welding
- Sheetmetal Work
- Weight and Balance
- Paint and Dope
- Metal Fittings
- Fasteners

Power Plant Mechanic:

- Fundamental Theory of Airplane Engines
- Reciprocating Engines
- Jet Engines
- Assembly and Dismantling of Engine
- Engine Accessories
- Engine Instruments
- Carburetion
- Fuel Metering and Injection
- Superchargers
- Flight Control Systems
- Hydraulics and Plumbing Systems
- Pneumatic Systems
- Life Support Systems
- Pressurization Systems
- Fundamental Training for FAA:
 - A and P Certificate
 - Airframe Certificate
 - Power Plant Certificate
- Trouble Shooting
- Other (specify)

Aircraft Electrical Mechanic:

- Fundamentals of Aircraft:
 - Electrical Systems
 - Aircraft Electrical Installation
- Aircraft Power Systems:
 - Primary Power DC Systems
 - Auxiliary DC Systems
 - Primary Power AC Systems
 - Auxiliary AC Systems
- Circuit Design
- Aircraft Circuits
- Complex Circuits
- Power Distribution Circuit Design:
 - Single Generator Systems
 - Multi Generator Systems
- Autopilot and Flight Path Control
- The Autopilot
- Special Problems and Designs:
 - Anti-icing
 - De-icing

- Temperature Control
- Air Conditioning
- Propeller Control
- Gyro Compass Systems
- Other (specify)

Aircraft Electronic Technician:

- Tool Crib
- Electrical Fabrication and Assembly
- Final Testing Electrical and Hydraulic Systems
- Aircraft Assembly and Systems Checkout
- Electrical and Electronic Equipment Development
- Test Equipment Construction and Calibration
- Final Testing Electronics System
- Electrical Systems Development
- Electrical Systems Inspection
- Other (specify)

Electrical-Electronics Development Mechanic:

- Mechanic
- Tool Crib
- Electrical Fabrication and Assembly
- Sheetmetal Subassembly
- Electrical-Electronic Installation and Checkout
- Final Testing:
 - Pneumatic System
 - Electrical System
 - Electronic System
- Test Equipment-Construction and Calibration
- Electrical-Electronic Systems Development
- Electrical-Electronic Systems Inspection
- Instrumentation-Flight Test
- Other (specify)

Flight Line Mechanic:

- Processing Parts
- Sheet Metal Fabrication and Assembly
- Aircraft Assembly
- Functional Test and Inspection
- Production Flight
- Flight Test
- Other (specify)

Jig and Fixture Builder:

- Jigs and Fixtures
- Structures Assembly
- Machine Tools and Equipment
- Templates and Lofting

SUBJECTS AND COURSES—Continued

- | | | | |
|--|--------------------------|---|--------------------------|
| Plaster and Plastics | <input type="checkbox"/> | Capacitance and Capacitive Circuits | <input type="checkbox"/> |
| Tool Design and Inspection | <input type="checkbox"/> | Basic A/C Circuit Analysis | <input type="checkbox"/> |
| Heat Treating and Welding | <input type="checkbox"/> | Diodes and Power Supplies | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Vacuum Tubes | <input type="checkbox"/> |
| Mockup/Tooling Development Mechanics: | | Transistors | <input type="checkbox"/> |
| Sheetmetal Fabrication | <input type="checkbox"/> | Amplifiers, General | <input type="checkbox"/> |
| Structural Assembly | <input type="checkbox"/> | Amplifier Comprehensive Testing | <input type="checkbox"/> |
| Template Making | <input type="checkbox"/> | RF Amplifiers and Resonance | <input type="checkbox"/> |
| Plaster/Plastics Tooling | <input type="checkbox"/> | Oscillators | <input type="checkbox"/> |
| Tool Design and Inspection | <input type="checkbox"/> | Heterodyne and Neutralization | <input type="checkbox"/> |
| Cabin Furnishings | <input type="checkbox"/> | Modulation and Detection | <input type="checkbox"/> |
| Fabrication and Structure Development | <input type="checkbox"/> | Transmitters | <input type="checkbox"/> |
| Wood Patternmaking | <input type="checkbox"/> | Receivers | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Antennas-Propagation | <input type="checkbox"/> |
| FCC Radiotelephone and Telegraph: | | Antenna Testing | <input type="checkbox"/> |
| License Review and Familiarization | <input type="checkbox"/> | Coupling and Frequency Measurement | <input type="checkbox"/> |
| Purpose and Scope of Course | <input type="checkbox"/> | Frequency Modulation | <input type="checkbox"/> |
| Batteries and Motors | <input type="checkbox"/> | Basic Radar | <input type="checkbox"/> |
| Inductance and Inductive Circuits | <input type="checkbox"/> | Magnetrons and Klystrons | <input type="checkbox"/> |
| | | Communication Laws | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

Machines:

- Type of machine:
- Automatic
 - Console controlled
 - Multi-purpose
 - Multi-acting
 - Multi-spindle
 - Numerical controlled
 - Single acting
 - Single spindle
 - Radial
 - Rotary
 - Rotary head
 - Tape controlled
 - Other (specify)
- Bending machine
 - Brake
 - Cold roll mill
 - Contour roll machine
 - Cutoff machine
 - Draw roll machine
 - Drill press
 - Drivematic machine
 - Drop hammer
 - Duplicating and profiling machine
 - Forming roll machine
 - Flaring machine
 - Hot dimpling machine

Lathes:

- Buffing lathes
 - Grinding lathes
 - Polishing lathe
 - Spinning lathe
 - Metallizing machine
 - Numbering machine
 - Pantograph machine
 - Power hammer
 - Planishing machine
- Presses:**
- Arbor press
 - Hydraulic press
 - Straightening press
 - Progressive rolling machine
 - Riveting machine
 - Router
- Saws:**
- Hacksaw
 - Circular saw
 - Bend saw
 - Cutoff saw
 - Abrasive saw
 - Do-all saw
- Shaper**
- Shears:**
- Nibbler
 - Squaring shear
- Wiping machine**

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

Grinders:		Spot	<input type="checkbox"/>
Pedestal grinder	<input type="checkbox"/>	Roll	<input type="checkbox"/>
Tool and cutter grinder	<input type="checkbox"/>	Seam	<input type="checkbox"/>
Stretch wrap forming machine	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Silkscreen machine	<input type="checkbox"/>		
Presses:		Work Aids:	
Punch press	<input type="checkbox"/>	Measuring devices:	
Stretch press	<input type="checkbox"/>	Balance gage	<input type="checkbox"/>
Swaging machine	<input type="checkbox"/>	Calipers:	
Tumbling barrel abrasive machine	<input type="checkbox"/>	Inside	<input type="checkbox"/>
Proof loading machine	<input type="checkbox"/>	Outside	<input type="checkbox"/>
Belt sanding machines	<input type="checkbox"/>	Vernier	<input type="checkbox"/>
Woodworking machines	<input type="checkbox"/>	Dividers	<input type="checkbox"/>
Pattern making machines	<input type="checkbox"/>	Gages:	
Impact extrusion press	<input type="checkbox"/>	Center gage	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Dial indicator	<input type="checkbox"/>
		Feeler gage	<input type="checkbox"/>
Tools:		Fixed gage	<input type="checkbox"/>
Handtools:		Height gage	<input type="checkbox"/>
Pliers	<input type="checkbox"/>	Plug gage	<input type="checkbox"/>
Screwdrivers	<input type="checkbox"/>	Screwpitch gage	<input type="checkbox"/>
Hammers	<input type="checkbox"/>	Surface plate	<input type="checkbox"/>
Mauls	<input type="checkbox"/>	Telescoping gage	<input type="checkbox"/>
Mallets	<input type="checkbox"/>	Thickness gage	<input type="checkbox"/>
Wrenches:		Thread gage	<input type="checkbox"/>
Box	<input type="checkbox"/>	Gage blocks:	
Open end	<input type="checkbox"/>	Johannsen blocks	<input type="checkbox"/>
Torque	<input type="checkbox"/>	Parallel blocks	<input type="checkbox"/>
Monkey	<input type="checkbox"/>	V-blocks	<input type="checkbox"/>
Pipe cutters	<input type="checkbox"/>	Micrometers:	
Pipe benders	<input type="checkbox"/>	Depth micrometer	<input type="checkbox"/>
Pipe threaders	<input type="checkbox"/>	Flange micrometer	<input type="checkbox"/>
Files	<input type="checkbox"/>	Inside micrometer	<input type="checkbox"/>
Tube benders	<input type="checkbox"/>	Outside micrometer	<input type="checkbox"/>
Tube flares	<input type="checkbox"/>	Swiss hole micrometer	<input type="checkbox"/>
Tube cutters	<input type="checkbox"/>	Tube micrometer	<input type="checkbox"/>
Other (Specify)	<input type="checkbox"/>	Electronic micrometer	<input type="checkbox"/>
Equipment:		Angle plates	<input type="checkbox"/>
Anodizing equipment	<input type="checkbox"/>	Quadrants	<input type="checkbox"/>
Chemical etching	<input type="checkbox"/>	Straight edges	<input type="checkbox"/>
Electrolytic cleaning equipment	<input type="checkbox"/>	Depth rules	<input type="checkbox"/>
Electroplating equipment	<input type="checkbox"/>	Shrink rules	<input type="checkbox"/>
Heat treating equipment	<input type="checkbox"/>	Optical comparator	<input type="checkbox"/>
High energy forming equipment	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Induction brazing equipment	<input type="checkbox"/>	Testing equipment:	
Photo etching equipment	<input type="checkbox"/>	Wattmeter	<input type="checkbox"/>
Plastics laminating equipment	<input type="checkbox"/>	Potentiometer	<input type="checkbox"/>
Profiling cutting torch equipment	<input type="checkbox"/>	Manometer	<input type="checkbox"/>
Oxygraph cutting equipment	<input type="checkbox"/>	Tachometer	<input type="checkbox"/>
Sandblasting equipment	<input type="checkbox"/>	Focometer	<input type="checkbox"/>
Gas generated atmospheric furnaces	<input type="checkbox"/>	Galvanometer	<input type="checkbox"/>
Ovens	<input type="checkbox"/>	Collimator	<input type="checkbox"/>
Welders:		Dynamometer	<input type="checkbox"/>
Flash	<input type="checkbox"/>	Extensometer	<input type="checkbox"/>

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

Tensiometer	<input type="checkbox"/>	Burst testers	<input type="checkbox"/>
Torque meter	<input type="checkbox"/>	Bend fatigue machine	<input type="checkbox"/>
Conductometer	<input type="checkbox"/>	Magnaflux test equipment	<input type="checkbox"/>
Frequency meter	<input type="checkbox"/>	Ultra sonic test equipment	<input type="checkbox"/>
Megohmmeter	<input type="checkbox"/>	Fluorescent penetrant test equipment	<input type="checkbox"/>
Ammeter	<input type="checkbox"/>	Approval slips	<input type="checkbox"/>
Power factor meter	<input type="checkbox"/>	Acceptance slips	<input type="checkbox"/>
Phase angle meter	<input type="checkbox"/>	Rejection slips	<input type="checkbox"/>
Voltmeter	<input type="checkbox"/>	Engineering drawings	<input type="checkbox"/>
Voltohm milliammeter	<input type="checkbox"/>	Inspection orders	<input type="checkbox"/>
Photometer	<input type="checkbox"/>	Records	<input type="checkbox"/>
Electrophotometer	<input type="checkbox"/>	Graphs	<input type="checkbox"/>
Light Meter	<input type="checkbox"/>	Tables	<input type="checkbox"/>
Spectrophotometer	<input type="checkbox"/>	Specimens	<input type="checkbox"/>
Plastometer	<input type="checkbox"/>	Specifications	<input type="checkbox"/>
Durometer	<input type="checkbox"/>	Test sheets	<input type="checkbox"/>
Densitometer	<input type="checkbox"/>	Checkout lists	<input type="checkbox"/>
Thermometer	<input type="checkbox"/>	Design change sheets	<input type="checkbox"/>
Color machography equipment	<input type="checkbox"/>	Tooling specifications	<input type="checkbox"/>
Flight simulators	<input type="checkbox"/>	Fabricating specifications	<input type="checkbox"/>
Circuit continuity equipment	<input type="checkbox"/>	Bench assembly specifications	<input type="checkbox"/>
Megohm bridge	<input type="checkbox"/>	Schedules	<input type="checkbox"/>
Wheatstone bridge	<input type="checkbox"/>	Structural assembly specifications	<input type="checkbox"/>
Impedance measuring equipment	<input type="checkbox"/>	System installation specifications	<input type="checkbox"/>
Oscillographs	<input type="checkbox"/>	Sketches	<input type="checkbox"/>
Oscilloscopes	<input type="checkbox"/>	Plumb bob	<input type="checkbox"/>
Metalograph	<input type="checkbox"/>	Microscope	<input type="checkbox"/>
Transit	<input type="checkbox"/>	Master patterns	<input type="checkbox"/>
Optical protractor	<input type="checkbox"/>	Master templates	<input type="checkbox"/>
Binocular microscope	<input type="checkbox"/>	Holding devices	<input type="checkbox"/>
Optical centering instrument	<input type="checkbox"/>	Jigs	<input type="checkbox"/>
Stress strain recorders	<input type="checkbox"/>	Fixtures	<input type="checkbox"/>
Pneumatic test equipment	<input type="checkbox"/>	Patterns	<input type="checkbox"/>
Hydrostatic test equipment	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Hardness testers	<input type="checkbox"/>		

AERO-ASTRO PRODUCTS AND SYSTEMS

Record an "X" to indicate product, structure, or system worked on.

Aerospace products:		Environmental simulators	<input type="checkbox"/>
Space vehicles:		Other (specify)	<input type="checkbox"/>
Space craft:		Aircraft:	
Manned spacecraft	<input type="checkbox"/>	Helicopters:	
Unmanned spacecraft	<input type="checkbox"/>	STOL	<input type="checkbox"/>
Modules	<input type="checkbox"/>	VTOL	<input type="checkbox"/>
Missiles:		Hypersonic aircraft	<input type="checkbox"/>
Surface to air	<input type="checkbox"/>	Military aircraft:	
Surface to surface	<input type="checkbox"/>	Strategic aircraft	<input type="checkbox"/>
Air to surface	<input type="checkbox"/>	Tactical aircraft	<input type="checkbox"/>
Intercontinental	<input type="checkbox"/>	Support aircraft	<input type="checkbox"/>
Booster vehicles	<input type="checkbox"/>	Training aircraft	<input type="checkbox"/>
Launch vehicles	<input type="checkbox"/>	Supersonic aircraft	<input type="checkbox"/>
Test stands	<input type="checkbox"/>		
Space simulators	<input type="checkbox"/>		

AERO-ASTRO PRODUCTS AND SYSTEMS—Continued

Transport aircraft:		Launch vehicle structures	<input type="checkbox"/>
Cargo aircraft	<input type="checkbox"/>	Missile structures	<input type="checkbox"/>
Commercial aircraft	<input type="checkbox"/>	Re-entry structures	<input type="checkbox"/>
Private aircraft	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>		
Aircraft training products:		Miscellaneous structures	<input type="checkbox"/>
Aircraft simulators	<input type="checkbox"/>	Wind tunnels	<input type="checkbox"/>
Operational simulators	<input type="checkbox"/>	Craft systems:	
Training simulators	<input type="checkbox"/>	Propulsion systems:	
Link trainers	<input type="checkbox"/>	Turbo jet	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Ram jet	<input type="checkbox"/>
		Piston driven	<input type="checkbox"/>
		Rocket driven	<input type="checkbox"/>
		Fan jet	<input type="checkbox"/>
		Other (specify)	<input type="checkbox"/>
Aircraft structures:		Flight control systems	<input type="checkbox"/>
Airframe	<input type="checkbox"/>	Hydraulics and plumbing systems	<input type="checkbox"/>
Wings	<input type="checkbox"/>	Navigational systems	<input type="checkbox"/>
Tailsections	<input type="checkbox"/>	Communication systems	<input type="checkbox"/>
Fuselages	<input type="checkbox"/>	Electrical-electronic systems	<input type="checkbox"/>
Arresting gear	<input type="checkbox"/>	Instrument systems	<input type="checkbox"/>
Landing gear	<input type="checkbox"/>	Life-support systems	<input type="checkbox"/>
Bomb bays	<input type="checkbox"/>	Pneumatic systems	<input type="checkbox"/>
Aircraft compartmentation	<input type="checkbox"/>	Armament systems	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Inertial guidance systems	<input type="checkbox"/>
Spacecraft structures:		Other (specify)	<input type="checkbox"/>
Capsules	<input type="checkbox"/>		
Nose cones	<input type="checkbox"/>		
Booster vehicle structures	<input type="checkbox"/>		

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

Agriculture	<input type="checkbox"/>	Financial	<input type="checkbox"/>
Commercial:		Government Service	<input type="checkbox"/>
Business Service	<input type="checkbox"/>	Industrial	<input type="checkbox"/>
Food and Beverage	<input type="checkbox"/>	Insurance	<input type="checkbox"/>
Lodging Service	<input type="checkbox"/>	Legal	<input type="checkbox"/>
Personal Service	<input type="checkbox"/>	Library	<input type="checkbox"/>
Printing and Publishing	<input type="checkbox"/>	Medical Service	<input type="checkbox"/>
Repair Service	<input type="checkbox"/>	Military	<input type="checkbox"/>
Sales	<input type="checkbox"/>	Nonprofit	<input type="checkbox"/>
Communications	<input type="checkbox"/>	Office Service	<input type="checkbox"/>
Conservation	<input type="checkbox"/>	Recreation	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Social Service	<input type="checkbox"/>
Correctional	<input type="checkbox"/>	Subsurface and Space	<input type="checkbox"/>
Educational	<input type="checkbox"/>	Transportation	<input type="checkbox"/>
Entertainment	<input type="checkbox"/>	Utilities	<input type="checkbox"/>
Exhibition Center	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

BUILDING AND CONSTRUCTION TRADES

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Supervises, and coordinates activities of, workers engaged in building and construction craft activities as:

- Carpentry
- Plastering
- Waterproofing
- Concrete masonry
- Bricklaying
- Stone setting
- Tile setting
- Pipefitting
- Structural steel erection
- Plumbing
- Asbestos and insulation work
- Paperhanging
- Lathing
- Pipelaying
- Concrete and asphalt paving
- Floorlaying
- Glaziery
- Roofing
- Rigging
- Elevator constructing
- Tank building and erecting
- Marble setting
- Monument setting
- House moving
- Ornamental and architectural iron erection
- Mining
- Drywall applicating
- Insulating work
- Other (specify)

Operating equipment as:

- Grading equipment
- Excavating equipment
- Concrete paving equipment
- Asphalt paving equipment
- Dredging equipment
- Pile driving equipment
- Welldrilling equipment
- Tunneling equipment
- Other (specify)

WHAT THE WORKER DOES—Continued

- Materials:
 - Handling equipment
 - Transporting equipment
 - Mixing equipment
 - Pumping equipment
 - Other (specify)
- Tending
 - Concrete or plaster:
 - Batching equipment
 - Pumping equipment
 - Spraying equipment
 - Other (specify)
- Plans and determines:
 - Manpower requirements
 - Worker schedules
 - Construction procedures
 - Maintenance procedures
 - Inspection requirements
- Prepares work schedules
- Assigns workers to duties
- Gives work directions to workers
- Interprets building plans, structural specifications, drawings, and technical data
- Trains workers in:
 - Craft duties
 - Operation of machines and equipment
 - Safety practices and regulations
- Advises workers in methods and procedures for solving work problems
- Coordinates:
 - Craft activities with other craft activities
 - Worker activities
 - Building inspection activities
- Enforces worker compliance with established work procedures, regulations, and safety rules
- Recommends promotions, demotions, discharges, and disciplinary actions
- Evaluates workers performance
- Requisitions materials, tools, and equipment
- Requisitions machine maintenance and repair
- Keeps records of workers performance
- Prepares reports on construction or maintenance activities
- Other (specify)
- Operates equipment to:
 - Grade construction sites
 - Excavate earth and other materials
 - Pave highways and streets
 - Dredge sand and other materials
 - Drive pilings
 - Drill wells

- Bore tunnels
- Handle materials
- Transport materials
- Mix materials
- Pump materials
- Other (specify)
- Moves levers, turns controls, or depresses pedals to:
 - Start or stop equipment
 - Guide or steer equipment
 - Position attachments for specific operations
 - Perform operations
 - Reposition attachments or equipment
 - Other (specify)
- Tends equipment or machines to:
 - Mix batches of concrete, plaster, or other covering materials
 - Pump concrete, plaster, or other materials
 - Spray materials on structure
 - Maintain pressure in underground structures or chambers (locks)
 - Other (specify)
- Constructs, erects, or builds:
 - Wooden structures and fixtures
 - Structural steel framework
 - Tanks
 - Concrete forms and pouring chutes
 - Scaffolding
 - Fences
 - Metal framework
 - Stairways
 - Elevators or moving stairways
 - Other (specify)
- Sets:
 - Marble slabs or blocks
 - Stone
 - Tile
 - Artificial stone
 - Monuments
 - Other (specify)
- Fits and installs:
 - Steam, gas, water, or acid piping systems
 - Plumbing systems and fixtures
 - Pneumatic tube conveyor systems
 - Pneumatic control system piping
 - Cabinets
 - Window frames
 - Partitions
 - Doors
 - Door frames

WHAT THE WORKER DOES—Continued

- Weather stripping
 - Wooden trim
 - Metal hardware
 - Structural steel
 - Structural glass
 - Other (specify)
- Lays:
- Brick structural tile and block materials
 - Terrazzo floors
 - Flooring and subflooring
 - Floor coverings and foundation materials
 - Pipe for storm drains, sewers, and
water mains
 - Other (specify)
- Applies:
- Composition weatherboard on exterior surfaces
 - Siding materials on exterior surfaces
 - Decorative and protective paint on
building surfaces
 - Stucco on exterior surfaces
 - Plasterboard onto walls and ceilings
 - Waterproofing material on exterior
surfaces
 - Calking compounds in cracks and crevices
 - Coats of plaster on interior surfaces
 - Sizing compound on work surfaces
 - Roofing materials on structures
 - Insulating materials on equipment and
piping systems
 - Other (specify)
- Fastens:
- Lathing materials on walls and ceilings
 - Acoustical tile on ceilings
 - Facing brick on sides of structures
 - Insulation materials onto walls, floors,
and ceilings
 - Paneling on walls
 - Other (specify)
- Blows insulating materials into spaces
of structures

Finishes:

 - Wooden floors
 - Concrete surfaces
 - Plaster surfaces
 - Stucco surfaces
 - Other (specify)

Reviews, studies, or analyzes:

 - Blueprints
 - Sketches
 - Building plans
 - Architects drawings
 - Bills of materials
 - Work order specifications
 - Structural specifications
 - Construction plans
 - Contract specifications
 - Other (specify)

Determines:

 - Building sequences
 - Construction sequences
 - Installation sequences
 - Methods and procedures for specified work
 - Other (specify)

Calculates:

 - Material requirements
 - Equipment requirements
 - Job costs
 - Building angles and courses
 - Other (specify)

Measures:

 - Structural areas
 - Dimensions of structure
 - Material length, width, or thickness
 - Other (specify)

Selects specified materials:

Lays out:

 - Reference points and lines
 - Material cutting lines
 - Assembly lines
 - Work guidelines
 - Foundation lines
 - Grading lines
 - Fence lines
 - Other (specify)

Prepares surfaces or areas for work by:

 - Sanding
 - Cleaning
 - Chipping
 - Scraping
 - Filling holes, cracks, crevices,
or joints
 - Scaling
 - Sealing
 - Removing fixtures or obstacles
 - Masking or covering non-work areas
 - Removing rough or defective surfaces
 - Other (specify)

Cuts material into specified:

 - Shape

WHAT THE WORKER DOES—Continued

- | | | | |
|---|--------------------------|---|--------------------------|
| Size | <input type="checkbox"/> | Verifies alinement of: | |
| Length | <input type="checkbox"/> | Parts | <input type="checkbox"/> |
| Width | <input type="checkbox"/> | Structures | <input type="checkbox"/> |
| Thickness | <input type="checkbox"/> | Stone | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Brick | <input type="checkbox"/> |
| | | Installation | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |
| Spreads: | | Breaks or cuts off excess material | <input type="checkbox"/> |
| Concrete to specified depth | <input type="checkbox"/> | Drills hole for: | |
| Mortar on brick, structural tile, blocks
and other materials | <input type="checkbox"/> | Attaching material on structures | <input type="checkbox"/> |
| Stucco onto exterior surfaces | <input type="checkbox"/> | Installing material | <input type="checkbox"/> |
| Plaster onto walls or over lathing | <input type="checkbox"/> | Fills joints with: | |
| Mastic or other adhesive on floor or
foundation coating | <input type="checkbox"/> | Calking materials | <input type="checkbox"/> |
| Paste on wallpaper | <input type="checkbox"/> | Lead | <input type="checkbox"/> |
| Putty on sash of windows | <input type="checkbox"/> | Calking compound | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Sealing compound | <input type="checkbox"/> |
| | | Mortar | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |
| Joins, secures, or fastens material by: | | Cuts and bends: | |
| Nails | <input type="checkbox"/> | Pipe into specified size and shape | <input type="checkbox"/> |
| Metal straps | <input type="checkbox"/> | Lathing to fit openings, corners,
and projections | <input type="checkbox"/> |
| Staples | <input type="checkbox"/> | Threads pipe | <input type="checkbox"/> |
| Dowels | <input type="checkbox"/> | Digs foundation trenches | <input type="checkbox"/> |
| Threaded joints | <input type="checkbox"/> | Pours concrete foundations | <input type="checkbox"/> |
| Calked joints | <input type="checkbox"/> | Mounts hangers and brackets | <input type="checkbox"/> |
| Rivets | <input type="checkbox"/> | Replaces defective piping | <input type="checkbox"/> |
| Soldered joints | <input type="checkbox"/> | Brushes, sprays, or rolls paint on
surfaces | <input type="checkbox"/> |
| Brazing | <input type="checkbox"/> | Cleans equipment and tools | <input type="checkbox"/> |
| Welding | <input type="checkbox"/> | Matches design and pastes paper on
wall | <input type="checkbox"/> |
| Wire | <input type="checkbox"/> | Polishes stone or marble | <input type="checkbox"/> |
| Hangers | <input type="checkbox"/> | Positions glass in window sashes | <input type="checkbox"/> |
| Brackets | <input type="checkbox"/> | Assembles glass doors and windows in
metal frames | <input type="checkbox"/> |
| Screws | <input type="checkbox"/> | Smooths wallpaper on wall | <input type="checkbox"/> |
| Bolts | <input type="checkbox"/> | Inspects piping system for defects | <input type="checkbox"/> |
| Anchor bolts | <input type="checkbox"/> | Tests piping systems for leaks | <input type="checkbox"/> |
| Cement | <input type="checkbox"/> | Paints and insulates pipes and fittings | <input type="checkbox"/> |
| Adhesive | <input type="checkbox"/> | Molds concrete expansion joints | <input type="checkbox"/> |
| Mastic | <input type="checkbox"/> | Repairs defects in material | <input type="checkbox"/> |
| Glazier points | <input type="checkbox"/> | Presses brick or tile into mortar | <input type="checkbox"/> |
| Mortar | <input type="checkbox"/> | Nails or cements waterproof materials
on roof | <input type="checkbox"/> |
| Pins | <input type="checkbox"/> | Digs postholes and sets posts | <input type="checkbox"/> |
| Glue | <input type="checkbox"/> | Stretches wire and attaches it onto posts | <input type="checkbox"/> |
| Clips | <input type="checkbox"/> | Replaces leaky faucet washers | <input type="checkbox"/> |
| Tie rods | <input type="checkbox"/> | Opens clogged drains | <input type="checkbox"/> |
| Braces | <input type="checkbox"/> | Attaches molding around windows, doors,
and other openings | <input type="checkbox"/> |
| Putty | <input type="checkbox"/> | Directs workers to mix plaster or other
materials | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | | |
| Mixes by hand or machine: | | | |
| Paint pigments, vehicle, and coloring | <input type="checkbox"/> | | |
| Wallpaper paste | <input type="checkbox"/> | | |
| Sealing compounds | <input type="checkbox"/> | | |
| Mortar | <input type="checkbox"/> | | |
| Other (specify) | <input type="checkbox"/> | | |

WHAT THE WORKER DOES—Continued

- | | | | |
|---|--------------------------|--|--------------------------|
| Wires lathing strips on furring | <input type="checkbox"/> | Stacks materials adjacent to worker | <input type="checkbox"/> |
| Wires lathing channels onto overhead structural framework | <input type="checkbox"/> | Cleans finished structures | <input type="checkbox"/> |
| Presses sealing tape over compound and joints in drywall | <input type="checkbox"/> | Signals operating personnel actions to be taken | <input type="checkbox"/> |
| Fills hopper of mixing machine with materials | <input type="checkbox"/> | Attaches slings onto materials for hoisting operations | <input type="checkbox"/> |
| Turns valves to regulate pumps and air compressor | <input type="checkbox"/> | Guides materials into position | <input type="checkbox"/> |
| Guides nozzle of caulking gun along crevices in structure | <input type="checkbox"/> | Positions beams for supporting structure | <input type="checkbox"/> |
| Presses lever to discharge compound into crevice | <input type="checkbox"/> | Jacks house up and places dollies under beams | <input type="checkbox"/> |
| Carries materials to craftsmen | <input type="checkbox"/> | Attaches towing bar onto dollies | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | | | |
|-----------------------------------|--------------------------|-----------------------|--------------------------|
| Building Contractor | <input type="checkbox"/> | Workers | <input type="checkbox"/> |
| Trade Contractor | <input type="checkbox"/> | Helpers | <input type="checkbox"/> |
| Construction Superintendent | <input type="checkbox"/> | Apprentices | <input type="checkbox"/> |
| Supervisors | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Supervisors of Other Trades | <input type="checkbox"/> | | |

EDUCATION AND TRAINING

Record an "X" to indicate education or training required.

- | | | | |
|--------------------------|--------------------------|--|--------------------------|
| Elementary | <input type="checkbox"/> | Technical Training | <input type="checkbox"/> |
| Junior High School | <input type="checkbox"/> | On-the-job Training | <input type="checkbox"/> |
| High School | <input type="checkbox"/> | Apprenticeship Training (see apprentice listing) | <input type="checkbox"/> |
| Junior College | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Vocational School | <input type="checkbox"/> | | |

LICENSURE OR CERTIFICATION

Record an "X" to indicate licenses or certification required.

- | | | | |
|---------------|--------------------------|-----------------------|--------------------------|
| Federal | <input type="checkbox"/> | City | <input type="checkbox"/> |
| State | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| County | <input type="checkbox"/> | | |

BUILDING TRADES AND CONSTRUCTION APPRENTICESHIPS

Record an "X" to indicate type of apprenticeship training.

- | | | | |
|--------------------------------------|--------------------------|-------------------------------|--------------------------|
| Asbestos and Insulation Worker | <input type="checkbox"/> | Iron Worker: | |
| Bricklayer | <input type="checkbox"/> | Ornamental Iron Worker | <input type="checkbox"/> |
| Carpenter | <input type="checkbox"/> | Reinforcing Iron Worker | <input type="checkbox"/> |
| Cement Mason | <input type="checkbox"/> | Structural Steel Worker | <input type="checkbox"/> |
| Elevator Constructor | <input type="checkbox"/> | Lather | <input type="checkbox"/> |
| Floor Layer | <input type="checkbox"/> | Marble Mason | <input type="checkbox"/> |
| Glazier | <input type="checkbox"/> | Painter and Decorator | <input type="checkbox"/> |

BUILDING TRADES AND CONSTRUCTION APPRENTICESHIPS—Continued

- | | | | |
|------------------------|--------------------------|--|--------------------------|
| Paperhanger | <input type="checkbox"/> | Terrazzo Worker | <input type="checkbox"/> |
| Pipefitter | <input type="checkbox"/> | Tile Setter | <input type="checkbox"/> |
| Plasterer | <input type="checkbox"/> | Operating Engineer: | |
| Plumber | <input type="checkbox"/> | Construction Equipment Operator | <input type="checkbox"/> |
| Roofer | <input type="checkbox"/> | Dredge Operator | <input type="checkbox"/> |
| Sprinkler Fitter | <input type="checkbox"/> | Pile Driver | <input type="checkbox"/> |
| Steamfitter | <input type="checkbox"/> | Hoisting and Portable Equipment Operator | <input type="checkbox"/> |
| Stone Mason | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

SUBJECTS AND COURSES

Record an "X" to indicate subjects or courses that develop skills for the occupation.

Trade Related Subjects and Courses:

- Applied Science
- Applied Chemistry
- Applied Physics
- Architectural Drawing
- Blueprint Reading
- Building Regulations and Codes
- Electrical Theory
- Electronic Theory
- Interpretation of Drawings
- Estimating
- Foremanship and Supervision
- Human Behavior
- Inspection
- Practical Geometry
- Practical Trigonometry
- Safety Practices
- Safety Regulations
- Sketching
- Trade Mathematics
- Trade Science
- Welding
- Other (specify)

Trade Theory:

Asbestos and Insulation Worker:

- Insulating Materials
- Pipe Coverings
- Insulating:
- Steam Piping
- Ventilation Systems
- Machinery and Equipment
- Refrigeration Equipment
- Refrigeration Piping
- Air Conditioning Piping
- Methods of Application
- Tools and Their Uses
- Insulation Covering Materials
- Methods of Covering Insulation
- Other (specify)

Bricklayer:

- History of Masonry

- Masonry Materials
- Application of Masonry Materials
- Tool Terminology
- Tool Description, Purposes, and Uses
- Functional Principles of Masonry
- Tools
- Types of Bonding Materials
- Types and Uses of Reinforcing
- Materials
- Safe Use of Tools, Scaffolding, and
- Materials
- Mixing and Application of Mortars
- Laying of:
- Cement Blocks
- Common Brick
- Architectural Terra Cotta
- Facing Brick
- Refractory Brick
- Construction of:
- Walls
- Corners
- Angles and Courses
- Pilasters
- Piers
- Footings
- Columns
- Chimneys
- Smokestacks
- Fireplaces
- Hearths
- Reinforced Masonry
- Cleaning and Preparing Surfaces
- Pointing
- Calking and Grouting
- Other (specify)

Carpenter:

- History and Orientation
- Introduction to Handtools and
- Materials
- Handtool Skills
- Principles of Machine Tools

SUBJECTS AND COURSES—Continued

- Machine Tools Operation
- Forms, Foundations, and Concrete
- Principles of Construction
- Framing Construction
- Principles of Exterior Finish
- Application of Interior Finish
- Introduction to Stairbuilding
- Layout and Construction of Stairs
- Heavy Construction Principles
- Form Detailing and Construction
- Hardware and Installation
- Door Hanging
- Cabinet Work
- Other (specify)

- Cement Mason:**
- Masonry Materials
 - Trade Tools and Equipment
 - Forms and Form Construction
 - Working Characteristics of
Materials
 - Concrete Working Techniques
 - Concrete Finishing Techniques
 - Expansion Joints
 - Concrete Handwork
 - Concrete Machine Work
 - Other (specify)

- Elevator Constructor:**
- Materials and Equipment
 - Controls
 - Installation Procedures
 - Installing:
 - Guide Rails
 - Hoisting Equipment and Motors
 - Counterweights
 - Control Systems
 - Signaling Equipment
 - Safety Devices
 - Elevator Testing and Adjusting
 - Elevator Maintenance and Repair
 - Other (specify)

- Floor Layer:**
- Materials of Trade
 - Types of Adhesives
 - Surface Preparation
 - Work Layout
 - Material Cutting, Fitting, Molding
 - Trade Tools and Equipment
 - Tile Laying Techniques
 - Linoleum Laying Techniques
 - Other (specify)

- Glazier:**
- Trade History and Orientation
 - Trade Tools and Equipment
 - Materials
 - Glass Specifications
 - Types and Qualities of:
 - Glass
 - Metal
 - Special Fastening Devices
 - Job Site Layout Methods
 - Methods of Cutting and Installing:
 - Glass
 - Mirrors
 - Glass Doors and Partitions
 - Manufacture and Preparation of:
 - Insulated Glass Units
 - Corrugated Glass Units
 - Types and Application of Structural
Glass
 - Other (specify)

- Iron Worker:**
- History and Scope of Ironworking Trade
 - Tools and Equipment
 - Rope Knots and Hitches
 - Care and Handling of Rope
 - Handtools
 - Cable Working Loads
 - Hardware
 - Cranes, Derricks, and Poles
 - Principles of Ironworking Trade:
 - Structural Principles
 - Ornamental Principles
 - Reinforced Iron Principles
 - Materials of Trade:
 - Rolled Steel Shapes
 - Rolled Sheet Steel
 - Corrugated Materials
 - Fabricated Steel Shapes
 - Ornamental Materials
 - Fasteners
 - Classes of Leverages
 - Gears and Ratios
 - Weights of Materials
 - Care and Use of Transit
 - Scaffolding and Ladders
 - Structural Steel Erection
 - Machinery, Moving and Rigging:
 - Reeving of Rope
 - Use and Care of Wire Rope
 - Splicing of Fiber and Wire Rope
 - Rigging Hardware and Attachments
 - Hoisting Equipment
 - Guy Lines and Anchorages
 - Jacks, Rolls, and Skids

SUBJECTS AND COURSES—Continued

- Structural Steel Erection:
 - Fabrication Procedures
 - Material Identification
 - Material Handling and Transporting
 - Connecting, Hooking-on, Taglining
 - Plumbing and Leveling
 - Mechanical Fasteners
 - Connections of Structural Steel
 - Structural Rigging
 - Parts and Erection Methods of:
 - Towers
 - Buildings
 - Bridges
 - Structural Safety
 - Signalling Methods
- Reinforcing Ironwork:
 - Identification of Materials
 - Hand and Bending Tools
 - Fabrication
 - Accessories
 - Unloading and Sorting of Materials
 - Types of Material Ties
 - Footings
 - Placing
 - Joint Preparation
 - Welding Procedures
- Ornamental Ironwork:
 - Handtools
 - Drills and Taps
 - Doors and Elevator Fronts
 - Curtain Wall Construction
 - Sashes
 - Stairways
 - Handrails
 - Layout
 - Fasteners
- Sheeting and Fencing:
 - Sheeting Materials
 - Sheeting Erection Methods
 - Service Station Materials
 - Service Station Erection Methods
 - Fencing Materials
 - Fencing Erection Methods
 - Other (specify)
- Lather:
 - Lathing Materials
 - Trade Tools and Equipment
 - Lathing Methods and Techniques
 - Specifications for Lathing
 - Lathing and Metal Layout
 - Structural Components
 - Lathing Accessories
 - Installation of:
 - Lathing

- Lathing Accessories
- Lathing:
 - Partitions and Walls
 - Ceilings
 - Exterior Surfaces
 - Other (specify)
- Painter and Decorator:
 - History and Background of Trade
 - Health and Safety Measures
 - Materials of Trade and Uses
 - Basic Uses of Trade Tools
 - Laws Governing Worker
 - Preparing Colors and Materials
 - Methods of Applying Materials
 - Hardwood and Hardwood Finishes
 - Architectural Decorating Practices and Finishes
 - Basic Graining and Marbling
 - Mixing and Matching Colors
 - Principles of Color Harmony
 - Color Chemistry
 - Psychology of Color
 - Care of Tools and Equipment
 - Other (specify)
- Paperhanger:
 - Materials of Trade
 - Tools of Trade
 - Selection and Use of Tools
 - Preparation of Surfaces
 - Application of:
 - Wallpaper
 - Canvas
 - Muslin
 - Fabrics
 - Systems of Color Notation
 - Principles of Color Harmony
 - Other (specify)
- Plasterer:
 - History and Development of Trade
 - Chemistry of Plastering Materials
 - Proportions of Materials
 - Lath and Masonry Bases
 - Plastering Materials
 - Job Conditions Affecting Plastering
 - Plaster Cracks and Causes
 - Dotting, Pressed Screeds, and Water Leveling
 - Job Layout Problems
 - Acoustical Plastering
 - Effect of Weather on Plastering
 - Effect of Poor Construction and Application

SUBJECTS AND COURSES—Continued

- Mitering Breaks and Returns
- Geometrical Layout Problems
- Molding and Casting
- Application of Materials
- Finishing Surfaces
- Other (specify)

- Pipe and Steam Fitter:
 - History and Development of Trade
 - Science of Heating and Refrigeration
 - Dimension Standards
 - Characteristics and Use of Piping
 - Mathematical Measurements
 - Steam Power
 - Process Piping, Theory and Installation
 - Principles of Heating Systems
 - Operation of Heating Systems
 - Standards for Heating Equipment
 - Low Pressure Heating Systems
 - Air Conditioning
 - Plumbing Fixtures, Installation, Applications, Testing, Servicing
 - Heating and Refrigeration Equipment, Servicing and Maintenance
 - Layout and Installation of Air Conditioning Piping System
 - Other (specify)

- Plumber:
 - Plumbing Materials
 - Trade Tools and Uses
 - Principles and Practices of Water Supply and Distribution
 - Formulas
 - Charts and Conversion Tables
 - Coefficients and Factors
 - Pipe Size Calculations
 - Structural Standards of Fixture Design
 - Fixtures and Special Applications
 - Layout for Plumbing and Pipefitting
 - Composition, Manufacture, and General Specifications for Pipe and Fittings
 - Bacteriological Considerations
 - Backflow Conditions and Prevention
 - System Design for Prevention of Water Pollution
 - Conventional and Practical Layout Methods
 - Piping Layout
 - Layout Methods
 - Fabrication and Erection of Piping
 - Installation and Testing of Plumbing Fixtures and Appliances

- Other (specify)

- Rofer:
 - Materials of Trade
 - Use and Care of Tools and Equipment
 - Preparation of Work Surfaces
 - Installation Methods for Slate, Tile, Terra Cotta, Paper
 - Application Methods for Tar, Pitch, Asphalt, Gravel, and Paper
 - Principles of Waterproofing and Damproofing
 - Procedures of Waterproofing and Damproofing
 - Other (specify)

- Sprinkler Fitter:
 - History of Trade
 - Classes of Systems
 - Elements of Design
 - Underground Piping
 - Sprinkler Heads
 - Valves
 - Dry System
 - Mechanical Alarms
 - Electric Alarms
 - Fire Department Connection Alarms
 - Supervisory Alarms
 - Special Sprinkler Systems
 - Thermostatically Controlled Systems
 - Details of Systems Installation and Design
 - Rigging and Scaffolding
 - Elements of Costs
 - Job Planning
 - Other (specify)

- Stone Mason — Marble Mason:
 - History of Masonry Trade
 - Application of Masonry Methods
 - Tool Terminology
 - Tool Descriptions, Purposes, Uses
 - Functional Principles of Masonry Tools
 - Masonry Materials
 - Types of Bonding Materials
 - Types and Uses of Reinforcing and Fastening Materials
 - Mixing and Application of Bonding Materials
 - Layout of Work
 - Fitting and Setting of Material on Walls, Floors, Stairs, and Arches
 - Cleaning of Materials

SUBJECTS AND COURSES—Continued

Pointing and Grouting	<input type="checkbox"/>	Lubrication	<input type="checkbox"/>
Preparation of Working Surfaces	<input type="checkbox"/>	Introduction to Basic Electricity	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Introduction to Basic Hydraulics	<input type="checkbox"/>
Tile Setter:		Converters	<input type="checkbox"/>
History of Tile, Mortar, and		Fluid Drives	<input type="checkbox"/>
Materials	<input type="checkbox"/>	Gears and Reductions	<input type="checkbox"/>
Tools of Trade and Uses	<input type="checkbox"/>	Transmissions	<input type="checkbox"/>
Surface Preparation	<input type="checkbox"/>	Introduction to Basic Pneumatics	<input type="checkbox"/>
Work Layout	<input type="checkbox"/>	Differentials and Rear Ends	<input type="checkbox"/>
Use of Hawk and Trowel	<input type="checkbox"/>	U-Joints and Drives	<input type="checkbox"/>
Strip Setting	<input type="checkbox"/>	Orientation to Heavy Equipment	<input type="checkbox"/>
Open Joint and Cove Installation		Construction Equipment Operators:	
of Glazed Mosaic, Ceramic,		Grade Plans and Earthwork:	
Quarry, and Cement Tile	<input type="checkbox"/>	Earth Moving	<input type="checkbox"/>
Installing Tile on:		Importance of Good Safety	
Floors	<input type="checkbox"/>	Practices	<input type="checkbox"/>
Walls	<input type="checkbox"/>	Measurements Used in Earthwork	<input type="checkbox"/>
Drainboards	<input type="checkbox"/>	Slopes, Grades, and Stakes	<input type="checkbox"/>
Ceilings	<input type="checkbox"/>	Types of Soil and Effects on	
Jambs	<input type="checkbox"/>	Earthwork	<input type="checkbox"/>
Curbs	<input type="checkbox"/>	Materials and Their Applications:	
Gutters	<input type="checkbox"/>	Aggregates and Their Uses	<input type="checkbox"/>
Columns	<input type="checkbox"/>	Concrete	<input type="checkbox"/>
Stairs	<input type="checkbox"/>	Asphalt	<input type="checkbox"/>
Domes	<input type="checkbox"/>	Application of Asphalt Pavement	<input type="checkbox"/>
Arches	<input type="checkbox"/>	Application of Concrete Pavement	<input type="checkbox"/>
Panels	<input type="checkbox"/>	Shovel and Crane Type Equipment:	
Fireplaces	<input type="checkbox"/>	Shovel	<input type="checkbox"/>
Tile Classifications	<input type="checkbox"/>	Crane	<input type="checkbox"/>
Glass Mosaics	<input type="checkbox"/>	Clamshell	<input type="checkbox"/>
New Materials	<input type="checkbox"/>	Dragline	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Backhoe	<input type="checkbox"/>
Operating Engineer:		Gradeall	<input type="checkbox"/>
Historical Background	<input type="checkbox"/>	Mucking Machine	<input type="checkbox"/>
Safety and First Aid	<input type="checkbox"/>	Excavator	<input type="checkbox"/>
Use of Tools:		Pile Driver	<input type="checkbox"/>
Handtools and Gages	<input type="checkbox"/>	Material Hoisting and Handling	
Power Tools	<input type="checkbox"/>	Equipment:	
Shop Tools and Equipment	<input type="checkbox"/>	Cranes and Derricks	<input type="checkbox"/>
Types of Instruments:		Belt Type Conveyors	<input type="checkbox"/>
Leveling Instruments	<input type="checkbox"/>	Tractors:	
Measuring Instruments	<input type="checkbox"/>	Crawler Type Bulldozers and	
Uses of Instruments	<input type="checkbox"/>	Rippers	<input type="checkbox"/>
Vehicle Code	<input type="checkbox"/>	Wheel Type Bulldozers	<input type="checkbox"/>
Rigging:		Graders:	
Cable and Wire Rope	<input type="checkbox"/>	Motorized	<input type="checkbox"/>
Clamps and Fittings	<input type="checkbox"/>	Towed	<input type="checkbox"/>
Slings and Spreaders	<input type="checkbox"/>	Scrapers:	
Blocks, Pulleys, and Swivels	<input type="checkbox"/>	Self Powered Type Scrapers	<input type="checkbox"/>
Weight and Materials	<input type="checkbox"/>	Towed	<input type="checkbox"/>
Proper Lifting Procedures	<input type="checkbox"/>	Tandem	<input type="checkbox"/>
Introduction to Internal		Self Loading	<input type="checkbox"/>
Combustion Engines	<input type="checkbox"/>	Land Levelers	<input type="checkbox"/>
		Loaders:	
		Front End	<input type="checkbox"/>

SUBJECTS AND COURSES—Continued

- Side
- Rear
- Overhead
- Compaction Equipment:
 - Tandem, Three Wheel, Grid and
 - Offset Rollers
 - Sheepfoot, Pneumatic and Wobbly
 - Wheel Rollers
 - Vibrating Compactors and Tampers
- Work Cycles:
 - Advanced Concepts in Measurement
 - Understanding Plans and
 - Specifications in Earthwork
- Job Methods:
 - Haul Engineering
 - Ditches, Ditch Gradients, Earthwork
 - and Equipment Selection
 - Bids, Contracts, and
 - Performances
- Dredge Operator:
 - Introduction to Dredging
 - Types of Dredges
 - Dredge Plant Components
 - Dredge Operation
- Seamanship:
 - Anchors
 - Small Boat Handling
 - Compass
 - Weather
 - Marinspike Seamanship
- Plant Equipment Operator
- Rock, Sand and Gravel Operator:
 - Crushers
 - Types of Crushers
 - Batch Plants
 - Processing Plants
- Concrete:
 - Grizzlies and Screens
 - Feeders
 - Aggregate Washing and
 - Separating Equipment
 - Kinds of Batching Equipment
 - Batch Operation
 - Trolley Batcher
 - Single Material Batcher
 - Aggregate Measurement
 - Weigh Batcher
 - Cement Weigh Hoppers
 - Multiple Batcher
 - Batching Systems
 - Fixed Plants
 - Mass Concrete Plant
 - Transit Mix Fixed Plant
 - Plant Maintenance and Safety

- Asphalt:
 - Central Mixing Plants
 - Cold Aggregate Feeder or Hopper
 - Cold Aggregate Elevator
 - Dryer Operation
 - Dust Operation
 - Hot Elevator
 - Graduation Control Unit
 - Bituminous Mixer
 - Fines Feeder
 - Boiler
 - Belt Conveyor
 - Bucket Loader
 - Bitumen Heater
 - Asphalt Kettle
 - Asphalt Distributor
 - Asphalt Tank
 - Trailer Tank
 - Liquid Storage Tank
 - Water Tank
 - Small Continuous Mix Plant
- Conveyors:
 - Types of Conveyors
 - Construction of Conveyors
 - Conveyor Parts
 - Adjustment
 - Alinement
 - Holdbacks
 - Hoppers and Loading
 - Spillage
 - Troughs and Skirts
 - Trippers
 - Safety Devices
 - Inclines
 - Capacities
 - Shiftable Frames
 - Rose Belt
 - Extensible Conveyor
 - Rough Loader
 - Stacker
- Controls:
 - Type of Controls
 - Operation of Controls
- Specialized Tools:
 - Special Tools Needed on Batch
 - Plants
 - Tools and Equipment Needed for
 - Service and Lubrication
- Job Methods, Planning and Layout:
 - Selection of Equipment for Job
 - Selection of Materials Needed
 - Troubleshooting
 - Job Problems
 - Methods of Measurement

SUBJECTS AND COURSES—Continued

Heavy Duty Repairman:

Welding:

- Principles of Welding and Cutting
- Oxycetylene
- Electric
- Soldering
- Preventive Maintenance
- Safety

Internal Combustion Engines:

- Engine Types
- Stationary Parts
- Major Moving Parts
- Typical Diesel Engines
- High Compression Gas Engines
- Auxiliary Systems

Crawler Track and Wheel Systems:

- Frames
- Springs
- Undercarriage:
 - Track
 - Rollers
 - Idlers
 - Sprockets
 - Truck Frames
 - Rebuilding Techniques

Preventive Maintenance

Safety

Bases and Carriers:

- Stationary
- Mobile

Tires and Care:

- Types of Tires
- Air Pressure
- Wheel Failure
- Tire Repair

Brake Systems:

- Mechanical
- Hydraulic
- Electrical
- Vacuum
- Brake Booster
- Repairs

Clutches and Frictions:

- Description and Operation
- Inspection and Maintenance
- Minor Adjustments
- Replace Clutch Springs and Release Bearings
- Clutch Troubleshooting

Steering Systems:

- Conventional
- Hydraulic Ram
- Electrical
- Clutch Brake
- Tracks

Wheels

Legs

Electricity:

- Coils
- Distributors
- Starter Motors and Controls
- Alternators, Regulators, Generators and Rectifiers
- Heavy Duty Lightning Systems
- Ignition Systems
- Storage Batteries
- Tune-Up Procedures
- Accessories

Hydraulics:

- Introduction
- Liquid Flow
- Pipe Fittings and Seals
- Valves and Pumps
- Hydraulic Systems

Pneumatics:

- Basic Pneumatics
- Compressors

Convertors:

- Uses
- Types
- Charging System
- Lockup
- Overrunning Clutch
- Heat Exchangers
- Types of Fluids
- Filter System

Fluid Drive:

- Types of Fluid Drive
- Service and Maintenance

Gear and Reductions:

- Multiple Speed
- Multiple Drive

Transmissions:

- Function
- Gearing
- Gear Material
- Types
- Disassembly
- Cleaning and Inspection
- Reassembly
- Adjustment

Final Drives:

- Single Reduction
- Planetary

Differentials and Rear Ends:

- Single Reduction Axles
- Two-Speed Axles
- Tandem Drive Axles
- Axle Shifting Systems

SUBJECTS AND COURSES—Continued

- | | | | |
|--|--------------------------|--|--------------------------|
| U-Joints and Drive Lines: | | Diesel | <input type="checkbox"/> |
| Types | <input type="checkbox"/> | Steam | <input type="checkbox"/> |
| Inspection | <input type="checkbox"/> | Electric | <input type="checkbox"/> |
| Manual and Parts Book | <input type="checkbox"/> | Hydraulic Systems: | |
| Use and Familiarization | <input type="checkbox"/> | Basic Types of Hydraulic Systems | <input type="checkbox"/> |
| Engine Principles and Theory | <input type="checkbox"/> | Similarity to Air Pressure | <input type="checkbox"/> |
| Fuel Systems and Carburetion | <input type="checkbox"/> | Pascal's Law | <input type="checkbox"/> |
| Air Intake and Exhaust Systems | <input type="checkbox"/> | Hydraulic Properties of Oil | <input type="checkbox"/> |
| Cooling and Lubrication Systems | <input type="checkbox"/> | Basic Hydraulic Pump | <input type="checkbox"/> |
| Electricity: | | Advantages of Hydraulic | |
| Theory of Electricity | <input type="checkbox"/> | Transmission | <input type="checkbox"/> |
| Parallel Circuits | <input type="checkbox"/> | Hydraulic Terms | <input type="checkbox"/> |
| Series Circuits | <input type="checkbox"/> | Symbols and Circuits | <input type="checkbox"/> |
| Ohm's Law | <input type="checkbox"/> | Pumps and Motors | <input type="checkbox"/> |
| Fundamentals of Electricity | <input type="checkbox"/> | Basic Valve Types | <input type="checkbox"/> |
| Circuits, Symbols, and Conductors | <input type="checkbox"/> | Cylinder Structure | <input type="checkbox"/> |
| Relays and Switches | <input type="checkbox"/> | Type of Hoses | <input type="checkbox"/> |
| Magnetism and Induction | <input type="checkbox"/> | Seals | <input type="checkbox"/> |
| Electrical Measurement | <input type="checkbox"/> | Choosing Right Oil | <input type="checkbox"/> |
| AC and DC Generation | <input type="checkbox"/> | Purposes of Reservoirs | <input type="checkbox"/> |
| Motors | <input type="checkbox"/> | Damaging Effect of Dirt | <input type="checkbox"/> |
| DC Circuits | <input type="checkbox"/> | Accumulators | <input type="checkbox"/> |
| Primary and Secondary Batteries | <input type="checkbox"/> | Testing Criteria | <input type="checkbox"/> |
| AC Current | <input type="checkbox"/> | Checking Operating Times | <input type="checkbox"/> |
| Direct Current Motors and | | Primary Visual Checks | <input type="checkbox"/> |
| Controls | <input type="checkbox"/> | Bypass Testing | <input type="checkbox"/> |
| Single and Three Phase Circuits | <input type="checkbox"/> | In-Line Testing | <input type="checkbox"/> |
| Transformers and Regulators | <input type="checkbox"/> | Pneumatic Systems: | |
| Polyphase Induction Motors | <input type="checkbox"/> | Basic Systems | <input type="checkbox"/> |
| Synchronous Motors | <input type="checkbox"/> | Compressors | <input type="checkbox"/> |
| Set Synchronous Apparatus | <input type="checkbox"/> | Portable Type | <input type="checkbox"/> |
| Single Phase Motors | <input type="checkbox"/> | Construction | <input type="checkbox"/> |
| Circuit-Protective and Switching | | Rating | <input type="checkbox"/> |
| Equipment | <input type="checkbox"/> | Pressure Control | <input type="checkbox"/> |
| Electrical Instruments and | | Heat | <input type="checkbox"/> |
| Measurement | <input type="checkbox"/> | Rotary Compressors | <input type="checkbox"/> |
| Electron Tubes and Devices | <input type="checkbox"/> | Reciprocating Compressors | <input type="checkbox"/> |
| Types and Sizes of Wire | <input type="checkbox"/> | Operation | <input type="checkbox"/> |
| Wire Connections and Joints | <input type="checkbox"/> | Air Lines and Accessories | <input type="checkbox"/> |
| Wiring of Heavy Appliances | <input type="checkbox"/> | Air Motors | <input type="checkbox"/> |
| Isolated and Standby Power Plants | <input type="checkbox"/> | Tanks | <input type="checkbox"/> |
| Special Engines: | | Governors | <input type="checkbox"/> |
| Gasoline | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

UNION AFFILIATION

Record an "X" to indicate union affiliation.

- | | | | |
|--|--------------------------|---|--------------------------|
| International Unions: | | International Association of Bridge, | |
| Bricklayers, Masons, and Plasterers | | Structural, and Ornamental | |
| International Union of America | <input type="checkbox"/> | Iron Workers | <input type="checkbox"/> |
| Brotherhood of Painters, Decorators, | | International Union of Operating | |
| and Paperhangers of America | <input type="checkbox"/> | Engineers | <input type="checkbox"/> |
| International Association of Heat and | | International Union of Elevator | |
| Frost Insulators and Asbestos Workers | <input type="checkbox"/> | Constructors | <input type="checkbox"/> |

UNION AFFILIATION—Continued

- Laborers International Union of North America
- Operative Plasterers and Cement Masons International Association of United States and Canada
- United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of the United States and Canada
- United Brotherhood of Carpenters and Joiners of America
- United Rubber, Cork, Linoleum, and Plastic Workers Union
- United Slate, Tile, and Composition Roofers, Damp and Waterproof Workers Association
- Wood, Wire, and Metal Lathers International Union
- Other (specify)
- Unions:
- Acoustical, Drywall, Insulation, and Scaffolding
- Acoustic Drywall Workers
- Asbestos Workers
- Bricklayers
- Bricklayers and Masons
- Bricklayers and Stonemasons
- Bricklayers and Tile Setters
- Carpenters
- Carpenters and Joiners
- Cement Masons
- Cement Finishers and Plasterers
- Elevator Constructors
- Floor Layers
- Glaziers and Glass Workers
- Gunitite Workers
- Hardwood Floor Carpenters
- Hod Carriers and Laborers
- House Movers
- Iron Workers

- Iron Workers Ornamental and Architectural Local
- Iron Workers and Shopmans Local
- Laborers
- Laborers and Plaster Tenders
- Lathers
- Lathers Nail and Wood Local
- Linoleum, Carpet, and Soft Tile Layers
- Marble Masons
- Operating Engineers
- Operating Engineers Hoisting and Portable Local
- Ornamental Iron Workers Local
- Painters
- Painters and Decorators
- Painters, Decorators, and Paperhangers
- Pile Drivers
- Pile Drivers, Bridge, Wharf, and Dock Builders Local
- Plasterers
- Plasterers and Cement Finishers
- Plasterers and Cement Masons
- Plumbers
- Plumbers and Fitters
- Plumbers and Steamfitters
- Reinforced Iron Workers
- Refrigeration, Air Conditioning, and Fitters
- Roofers
- Shinglers
- Shinglers and Drywall Installers
- Sprinkler Fitters
- Steamfitters
- Terrazzo Workers and Machine Operators
- Tile Layers
- Tile Setters
- Tile and Marble Setters Helpers
- Tile, Marble, and Terrazzo Helpers
- United Mine Workers, Construction Local
- Other (specify)

PRODUCTS

Record an "X" to indicate product produced.

- Construction Products:
- Abutments
- Airports
- Alleys
- Aluminum Mills
- Antennas
- Apartments
- Aqueducts
- Asylums

- Athletic Fields
- Auditoriums
- Ball Parks
- Boilers
- Bomb Shelters
- Breakwaters
- Bridges
- Canals
- Canal Locks

PRODUCTS Continued

- | | | | |
|-------------------------------------|--------------------------|--------------------------------|--------------------------|
| Canal Gates | <input type="checkbox"/> | Parking Lots | <input type="checkbox"/> |
| Caissons | <input type="checkbox"/> | Piers | <input type="checkbox"/> |
| Cemeteries | <input type="checkbox"/> | Pilot Plants | <input type="checkbox"/> |
| Cesspools | <input type="checkbox"/> | Pipelines | <input type="checkbox"/> |
| Chemical Plants | <input type="checkbox"/> | Pumping Stations | <input type="checkbox"/> |
| Chimneys | <input type="checkbox"/> | Radio Transmitting Towers | <input type="checkbox"/> |
| Churches | <input type="checkbox"/> | Railroad Roadbeds | <input type="checkbox"/> |
| Clean Rooms | <input type="checkbox"/> | Railroad Structures | <input type="checkbox"/> |
| Cofferdams | <input type="checkbox"/> | Rapid Transit Structures | <input type="checkbox"/> |
| Conduits | <input type="checkbox"/> | Refineries | <input type="checkbox"/> |
| Culverts | <input type="checkbox"/> | Reservoirs | <input type="checkbox"/> |
| Curbs | <input type="checkbox"/> | Roads | <input type="checkbox"/> |
| Dams | <input type="checkbox"/> | Rolling Mills | <input type="checkbox"/> |
| Dikes | <input type="checkbox"/> | Recreational Buildings | <input type="checkbox"/> |
| Drainage Canals | <input type="checkbox"/> | Residence | <input type="checkbox"/> |
| Elevators | <input type="checkbox"/> | Single Family | <input type="checkbox"/> |
| Electric Power Transmission Towers | <input type="checkbox"/> | Multi-Family | <input type="checkbox"/> |
| Escalators | <input type="checkbox"/> | Restaurants | <input type="checkbox"/> |
| Farm Buildings | <input type="checkbox"/> | Sewers | <input type="checkbox"/> |
| Factories | <input type="checkbox"/> | Sewage Plants | <input type="checkbox"/> |
| Fences | <input type="checkbox"/> | Shopping Centers | <input type="checkbox"/> |
| Financial Institutions | <input type="checkbox"/> | Silos | <input type="checkbox"/> |
| Fire Escapes | <input type="checkbox"/> | Stadia | <input type="checkbox"/> |
| Flood Control Projects | <input type="checkbox"/> | Stores | <input type="checkbox"/> |
| Freeways | <input type="checkbox"/> | Subways | <input type="checkbox"/> |
| Garages | <input type="checkbox"/> | Swimming Pools | <input type="checkbox"/> |
| Gas Mains | <input type="checkbox"/> | Television Transmitting Towers | <input type="checkbox"/> |
| Golf Courses | <input type="checkbox"/> | Telephone Transmission Lines | <input type="checkbox"/> |
| Grain Elevators | <input type="checkbox"/> | Transportation Terminals | <input type="checkbox"/> |
| Harbors | <input type="checkbox"/> | Tunnels | <input type="checkbox"/> |
| High Rise Buildings | <input type="checkbox"/> | Viaducts | <input type="checkbox"/> |
| Highways | <input type="checkbox"/> | Waste Disposal Plants | <input type="checkbox"/> |
| Hospitals | <input type="checkbox"/> | Waterways | <input type="checkbox"/> |
| Hotels | <input type="checkbox"/> | Wharfs | <input type="checkbox"/> |
| Houses | <input type="checkbox"/> | Retaining Walls | <input type="checkbox"/> |
| Hydroelectric Plants | <input type="checkbox"/> | Sidewalks | <input type="checkbox"/> |
| Industrial Furnaces | <input type="checkbox"/> | Storage Tanks | <input type="checkbox"/> |
| Industrial Ovens | <input type="checkbox"/> | Structural Steel Framework | <input type="checkbox"/> |
| Industrial Plants | <input type="checkbox"/> | Scaffolds | <input type="checkbox"/> |
| Institutional Buildings | <input type="checkbox"/> | Service Stations | <input type="checkbox"/> |
| Irrigation Projects | <input type="checkbox"/> | Windmills | <input type="checkbox"/> |
| Jettys | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Kilns | <input type="checkbox"/> | | |
| Laboratories | <input type="checkbox"/> | Systems: | |
| Levees | <input type="checkbox"/> | Air Conditioning | <input type="checkbox"/> |
| Libraries | <input type="checkbox"/> | Heating | <input type="checkbox"/> |
| Manholes | <input type="checkbox"/> | Piping: | |
| Marinas | <input type="checkbox"/> | Water | <input type="checkbox"/> |
| Mine Loading and Unloading Stations | <input type="checkbox"/> | Air | <input type="checkbox"/> |
| Missile Facilities | <input type="checkbox"/> | Gas | <input type="checkbox"/> |
| Mausoleums | <input type="checkbox"/> | Steam | <input type="checkbox"/> |
| Motels | <input type="checkbox"/> | Acid | <input type="checkbox"/> |
| Museums | <input type="checkbox"/> | Circulating | <input type="checkbox"/> |
| Oil Refineries | <input type="checkbox"/> | Cooling | <input type="checkbox"/> |
| Parks | <input type="checkbox"/> | Plumbing | <input type="checkbox"/> |

PRODUCTS—Continued

- | | | | |
|---------------------|--------------------------|-------------------|--------------------------|
| Refrigeration | <input type="checkbox"/> | Steam | <input type="checkbox"/> |
| Sprinkler | <input type="checkbox"/> | Ventilating | <input type="checkbox"/> |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

- | | | | |
|--------------------------------------|--------------------------|--|--------------------------|
| Construction Machines and Equipment: | | Concrete mobile form traveler | <input type="checkbox"/> |
| Canal construction machines: | | Concrete slip form hydraulic equipment | <input type="checkbox"/> |
| Concrete joint machine | <input type="checkbox"/> | Pavement breaker | <input type="checkbox"/> |
| Canal liner machine | <input type="checkbox"/> | Pipeline construction machines: | |
| Canal trimmer machine | <input type="checkbox"/> | Cast-in-place pipelayer | <input type="checkbox"/> |
| Earth compacting machines: | | Pipemobile | <input type="checkbox"/> |
| Hydra hammer aero stamper | <input type="checkbox"/> | Pipe wrapper, cleaner, bender | <input type="checkbox"/> |
| Roller compactor | <input type="checkbox"/> | Tar pipelining machine | <input type="checkbox"/> |
| Road pactor | <input type="checkbox"/> | Piledriver: | |
| Form tamper | <input type="checkbox"/> | Floating piledriver | <input type="checkbox"/> |
| Blob compactor | <input type="checkbox"/> | Mobile piledriver | <input type="checkbox"/> |
| Tamping machine | <input type="checkbox"/> | Tunnel construction machines: | |
| Earth moving equipment: | | Tunnel boring machines | <input type="checkbox"/> |
| Backhoe | <input type="checkbox"/> | Tunnel heading shield machine | <input type="checkbox"/> |
| Loader | <input type="checkbox"/> | Tunnel mucking machine | <input type="checkbox"/> |
| Power shovel: | | Tunnel mole boring machine | <input type="checkbox"/> |
| Backhoe shovel | <input type="checkbox"/> | Mixing machines: | |
| Dragline shovel | <input type="checkbox"/> | Concrete mixer | <input type="checkbox"/> |
| Clamshell shovel | <input type="checkbox"/> | Concrete batch plant | <input type="checkbox"/> |
| Highline cable equipment | <input type="checkbox"/> | Concrete dual drum mixer | <input type="checkbox"/> |
| Remote control earthmover | <input type="checkbox"/> | Concrete gun mixing machine | <input type="checkbox"/> |
| Trencher | <input type="checkbox"/> | Pumping equipment: | |
| Skiploader | <input type="checkbox"/> | Cement pump | <input type="checkbox"/> |
| Earth grading machines: | | Concrete gun pump | <input type="checkbox"/> |
| Push-pull scraper | <input type="checkbox"/> | Concrete pumping machine | <input type="checkbox"/> |
| Selfloading scraper | <input type="checkbox"/> | Mobile concrete pumping machine | <input type="checkbox"/> |
| Motor grader | <input type="checkbox"/> | Drilling machines: | |
| Bulldozer | <input type="checkbox"/> | Well drilling machines: | |
| Tractor loader | <input type="checkbox"/> | Cable tool | <input type="checkbox"/> |
| Auto grader | <input type="checkbox"/> | Rotary tool | <input type="checkbox"/> |
| Excavating machines: | | Water well drilling machines | <input type="checkbox"/> |
| Maas excavator | <input type="checkbox"/> | Dredges: | |
| Wheel excavator | <input type="checkbox"/> | Clamshell dredges | <input type="checkbox"/> |
| Tower excavator | <input type="checkbox"/> | Pump dredges | <input type="checkbox"/> |
| Paving machines and equipment: | | Hoisting equipment: | |
| Asphalt berm curber | <input type="checkbox"/> | Truck crane | <input type="checkbox"/> |
| Asphalt paver | <input type="checkbox"/> | Long boom truck crane | <input type="checkbox"/> |
| Asphalt roller | <input type="checkbox"/> | Tower crane | <input type="checkbox"/> |
| Asphalt screeder | <input type="checkbox"/> | Elevator | <input type="checkbox"/> |
| Asphalt spreader | <input type="checkbox"/> | Cherry picker | <input type="checkbox"/> |
| Asphalt heater and planer | <input type="checkbox"/> | Chicago boom hoist | <input type="checkbox"/> |
| Concrete berm curber | <input type="checkbox"/> | Mobile lift hoist | <input type="checkbox"/> |
| Concrete curer | <input type="checkbox"/> | Stiff leg hoist | <input type="checkbox"/> |
| Concrete lift slab | <input type="checkbox"/> | Tugger hoist | <input type="checkbox"/> |
| Concrete planer | <input type="checkbox"/> | Tools: | |
| Concrete spreader | <input type="checkbox"/> | Handtools: | |
| Concrete mechanical finisher | <input type="checkbox"/> | Drills | <input type="checkbox"/> |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- Chisels
- Files
- Knives
- Rules
- Scissors
- Tape Measures
- Scribers
- Wire Cutters
- Levels
- Mauls
- Mallets
- Screwdrivers
- Brushes
- Wrenches
- Clippers
- Needle
- Square
- Trowels
- Sawing Palms
- Hammers
- Saws
- Brick Hammers
- Jointers
- Brick Cutting Chisels
- Planes
- Straight Edge
- Floats
- Whips
- Darbies
- Finishing Trowel
- Pry Bars
- Shears
- Serrated Trowels
- Floor Rollers
- Putty Knives
- Hacksaws
- Bolt Cutters
- Punches
- Hatchets
- Staplers
- Pincers
- Scrapers
- Paint Rollers
- Wallpaper Rollers
- Reamers
- Brace and Bits
- Pipe Threaders and Dies
- Pipe Benders
- Roofing Knives

- Linoleum Knives
- Mops
- Crowbar
- Pointing Trowel
- Stone Masons Hammer
- Other (specify)

Power Handtools:

- Rivet Guns
- Power Drills
- Power Actuated Fastening Devices
- Spray Gun
- Calking Guns
- Grouting Guns
- Gunite Guns
- Cement Guns
- Power Saws
- Pneumatic Drills
- Pneumatic Hammers
- Other (specify)

Equipment:

- Soldering Equipment
- Brazing Equipment
- Welding Equipment
- Tar Kettles
- Lead Pots
- Blow Torches
- Stud Welding Guns
- Other (specify)

Work Aids:

- Blueprints
- Sketches
- Building Plans
- Architects Drawings
- Bills of Materials
- Work Order Specifications
- Structural Specifications
- Construction Plans
- Contract Specifications
- Compasses
- Chalk
- Plumb bob
- Crayons
- Grading Stakes
- Plumb Line
- Transit

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

Agriculture	<input type="checkbox"/>	Financial	<input type="checkbox"/>
Commercial	<input type="checkbox"/>	Government Service	<input type="checkbox"/>
Business Service	<input type="checkbox"/>	Industrial	<input type="checkbox"/>
Food and Beverage	<input type="checkbox"/>	Insurance	<input type="checkbox"/>
Lodging Service	<input type="checkbox"/>	Legal	<input type="checkbox"/>
Personal Service	<input type="checkbox"/>	Library	<input type="checkbox"/>
Printing and Publishing	<input type="checkbox"/>	Medical Service	<input type="checkbox"/>
Repair Service	<input type="checkbox"/>	Military	<input type="checkbox"/>
Sales	<input type="checkbox"/>	Nonprofit	<input type="checkbox"/>
Communications	<input type="checkbox"/>	Office Service	<input type="checkbox"/>
Conservation	<input type="checkbox"/>	Recreation	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Social Service	<input type="checkbox"/>
Correctional	<input type="checkbox"/>	Subsurface and Space	<input type="checkbox"/>
Educational	<input type="checkbox"/>	Transportation	<input type="checkbox"/>
Entertainment	<input type="checkbox"/>	Utilities	<input type="checkbox"/>
Exhibition Center	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

CHEMICALS AND ALLIED PRODUCTS PROCESSING

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates processing activities concerned with manufacture of:

- Basic industrial chemicals
- Chemical materials used in manufacturing of chemical products
- Chemical products used as raw materials in other industries
- Other (specify)

Supervises, and coordinates activities of, workers processing materials to produce:

- Industrial organic or inorganic basic chemical products
- Plastics materials or synthetic resins
- Synthetic rubber
- Synthetic and other man-made fibers
- Biological or botanical drugs, medicinal chemicals, or pharmaceutical preparations
- Soaps, detergents, cleaning preparations, or surface acting agents
- Perfumes, cosmetics, and other toilet preparations
- Paints, varnishes, enamels, lacquers, and allied products
- Gum and wood chemicals
- Agricultural chemicals
- Adhesives and gelatins
- Explosives
- Printing inks
- Carbon and lamp blacks
- Ammunition
- Coal tar derivative products
- Compressed and liquefied gases
- Processed oils and fats products
- Other (specify)

- Prepares work and worker schedules
- Assigns workers specific duties
- Interprets processing orders, specifications, and technical data for workers
- Inspects product for conformance with specifications
- Trains workers in machine or equipment operations
- Gives directions to workers concerning processing duties
- Advises workers on methods and procedures for solving work problems
- Reviews laboratory and test reports on materials and products
- Orders changes in processing procedures or equipment operation
- Coordinates processing activities with activities of other units or departments
- Enforces worker compliance with established procedures, regulations and safety rules
- Requisitions materials and supplies for scheduled production
- Notifies maintenance personnel of equipment or machine repairs required
- Keeps processing and production records
- Prepares reports on activities and production
- Other (specify)

WHAT THE WORKER DOES - Continued

Reads or reviews:

- Processing schedules
- Product specifications
- Material specifications
- Production schedules
- Chemical formulas
- Product formulas
- Other (specify)

Determines:

- Setup of processing machines and equipment
- Product processing sequences and priorities
- Material requirements
- Processing requirements
- Routing of inprocess materials through units
- Adjustments to equipment or machinery
- Other (specify)

Sets up and adjusts machines or equipment for other workers

Operates, controls, or tends machines or equipment to:

- Reduce materials into specified size
- Mix, combine, or blend materials for further processing
- Melt or fuse materials into single mass or compound
- Obtain mixture or compound of specific color, texture, or other characteristic
- Cause chemical reaction that changes chemical composition
- Distill liquid or semi-liquid materials for recovering specified substances
- Dry or remove excess moisture from materials or products
- Shape materials or products
- Mold materials or products
- Solidify materials or products
- Roll material into specified product
- Extrude materials into specified product
- Produce product of specified finish or thickness
- Produce products from processed chemicals
- Fill containers with products
- Package product
- Other (specify)

Installs, aligns, and secures:

- Molds or dies in machines
- Cutting or grinding tools in toolholders
- Machine attachments
- Work piece in holding fixture or jig
- Other (specify)

Sets equipment or machine controls for specified:

- Temperature
- Pressure
- Vacuum
- Material feed rates in machines
- Flow rates of materials, gases, or liquids through processing units
- Processing timing cycle
- Routing of materials through processing units
- Material weight
- Volume of materials
- Processing sequences
- Other (specify)

Moves levers or controls to:

- Start or stop machines or equipment
- Begin processing operations
- Regulate chemical reactions of materials
- Regulate material levels in equipment
- Adjust flow of liquids, gases, or materials through processing units
- Adjust operational performance of machines or equipment
- Transfer material into and from machines or equipment
- Perform machine operations
- Other (specify)

Monitors:

- Chemical reactions of materials
- Gages, meters, and recording instruments
- Television pictures of processing operations
- Operational performance of machines and equipment
- Other (specify)

Obtains and trucks materials to work station

- Weights or measures materials specified on formulas
- Dumps materials into machine hopper or onto conveyor
- Pumps specified materials into equipment

WHAT THE WORKER DOES - Continued

- | | | | |
|--|--------------------------|--|--------------------------|
| Opens valves and cross connections to route materials through units | <input type="checkbox"/> | Inspects machines or equipment for leaks or hazards | <input type="checkbox"/> |
| Gives workers of crew operational directions | <input type="checkbox"/> | Records gage and meter readings in station log | <input type="checkbox"/> |
| Observes in-process materials in units for: | | Notifies supervisory personnel of malfunctioning machines or equipment | <input type="checkbox"/> |
| Color | <input type="checkbox"/> | Assists in operation of equipment | <input type="checkbox"/> |
| Texture | <input type="checkbox"/> | Removes materials or products from machine, equipment or conveyor | <input type="checkbox"/> |
| Consistency | <input type="checkbox"/> | Cleans machine or equipment | <input type="checkbox"/> |
| Chemical reaction | <input type="checkbox"/> | Connects or disconnects lines and hoses to or from machines or equipment | <input type="checkbox"/> |
| Other desirable characteristics | <input type="checkbox"/> | Flushes out lines and equipment | <input type="checkbox"/> |
| Draws sample of material or product for testing or laboratory analysis | <input type="checkbox"/> | Assembles components into specified products | <input type="checkbox"/> |
| Performs on-station tests on material or product | <input type="checkbox"/> | Assists operator in processing materials or products | <input type="checkbox"/> |
| Analyzes results of laboratory analysis | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Correlates observations and data to determine adjustments required | <input type="checkbox"/> | | |

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | | | |
|-----------------------------|--------------------------|---------------------------|--------------------------|
| Management | <input type="checkbox"/> | Helpers | <input type="checkbox"/> |
| Supervisors | <input type="checkbox"/> | Laboratory Personnel | <input type="checkbox"/> |
| Other Supervisory Personnel | <input type="checkbox"/> | Quality Control Personnel | <input type="checkbox"/> |
| Operators | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Workers | <input type="checkbox"/> | | |

EDUCATION AND TRAINING

Record an "X" to indicate education or training required.

- | | | | |
|------------------|--------------------------|---------------------|--------------------------|
| Elementary | <input type="checkbox"/> | Vocational School | <input type="checkbox"/> |
| High School | <input type="checkbox"/> | On-the-job Training | <input type="checkbox"/> |
| Junior College | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Technical School | <input type="checkbox"/> | | |

SUBJECTS AND COURSES

Record an "X" to indicate subjects or courses that develop skills for the occupation.

- | | | | |
|--------------------------------------|--------------------------|---|--------------------------|
| Related Subjects and Courses: | | Foremanship and Supervision | <input type="checkbox"/> |
| Practical Arithmetic | <input type="checkbox"/> | Formulas | <input type="checkbox"/> |
| Applied Science | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Applied Chemistry | <input type="checkbox"/> | Chemical Processing Unit Operator: | |
| Properties of Materials | <input type="checkbox"/> | Adhesives Technology | <input type="checkbox"/> |
| Processes of Industry | <input type="checkbox"/> | Quantitative Analysis | <input type="checkbox"/> |
| Materials of Industry | <input type="checkbox"/> | Instrumental Analysis | <input type="checkbox"/> |
| Production Analysis | <input type="checkbox"/> | Organic Chemistry | <input type="checkbox"/> |
| Pneumatics | <input type="checkbox"/> | Inorganic Chemistry | <input type="checkbox"/> |
| Industrial Instrumentation | <input type="checkbox"/> | Chemical Technology | <input type="checkbox"/> |
| Human Behavior | <input type="checkbox"/> | Heat Transfer | <input type="checkbox"/> |
| Elements of Supervision | <input type="checkbox"/> | | |

SUBJECTS AND COURSES - Continued

Principles of Polymerization	<input type="checkbox"/>	Dies and Molds	<input type="checkbox"/>
Applied Chemistry of Plastics	<input type="checkbox"/>	Thermoplastic Molding	<input type="checkbox"/>
Materials	<input type="checkbox"/>	Injection Molding	<input type="checkbox"/>
Sources of Basic Materials for	<input type="checkbox"/>	Blow Molding Processes	<input type="checkbox"/>
Plastics	<input type="checkbox"/>	Mass Transfer	<input type="checkbox"/>
Properties of Thermoplasts	<input type="checkbox"/>	Transport Phenomena	<input type="checkbox"/>
Synthetic Elastomers	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

Machines:

Mixers and blenders:

- Banbury mixer
- Continuous processing mixer
- Tumbler mixer
- Remote controlled tumbler barrels
- Rotary mixer
- Pelletizing mixer
- Screw type mixer
- Crutcher
- Paddle type blender
- Mulling machine
- Other (specify)

Crushers and grinding mills:

Crushers:

- Jaw crusher
- Hammermill

Grinding mills:

- Ball mill
- Remote controlled ball mill
- Rod mill
- Pulverizing mill
- Other (specify)

Filter machines:

- Hydraulic filter machine
- Filter press
- Rotary leaf filter
- Plate and frame filter
- Vacuum pan filter
- Rotary vacuum drum filter
- Other (specify)

Presses:

- Hydraulic press
- Dehydrating press
- Extruder press
- Other (specify)

Sifters and screens:

- Agitator sifter
- Silk screen shaker

- Vibratory screens
- Sizing screens
- Other (specify)

Compressors:

- Gas compressors
- Air compressors
- Other (specify)

Miscellaneous machines:

- Beater cutter machines
- Blenders
- Centrifuges
- Pumps
- Vacuum pumps
- Slitting knives
- Roller machines
- Calendar roll mill
- Power saws
- Pulp machine
- Automatic scraper machine
- Seed cleaning machine
- Shredder machine
- Banding machine
- Swaging machine
- Primer press machine
- Sizing machine
- Grooving machine
- Casting machine
- Die casting machine
- Molding machine
- Centerless grinding machine
- Chamfering machine
- Loading machine
- Cutoff machine
- Embossing machine
- Filling machine
- Foiling machine
- Paeking machine
- Crimping machine
- Knurling machine
- Screw machine
- Graining press machine

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- | | | | |
|---|--------------------------|------------------------------|--------------------------|
| Spray machine | <input type="checkbox"/> | Steam jacketed kettles | <input type="checkbox"/> |
| Lubricating machine | <input type="checkbox"/> | Mixer kettles | <input type="checkbox"/> |
| Lacquering machine | <input type="checkbox"/> | Heat exchangers | <input type="checkbox"/> |
| Coating machine | <input type="checkbox"/> | Vacuum pans | <input type="checkbox"/> |
| Filament spinning machine | <input type="checkbox"/> | Furnaces: | |
| Other (specify) | <input type="checkbox"/> | Annealing furnaces | <input type="checkbox"/> |
| | | Reduction furnaces | <input type="checkbox"/> |
| | | Rotary furnaces | <input type="checkbox"/> |
| Tools: | | Kilns | <input type="checkbox"/> |
| Wrenches | <input type="checkbox"/> | Homogenizers | <input type="checkbox"/> |
| Bars | <input type="checkbox"/> | Hydrators | <input type="checkbox"/> |
| Screwdrivers | <input type="checkbox"/> | Impregnators | <input type="checkbox"/> |
| Pipe wrenches | <input type="checkbox"/> | Liquefiers | <input type="checkbox"/> |
| Pliers | <input type="checkbox"/> | Moisturizers | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Nitrators | <input type="checkbox"/> |
| | | Polymerizers | <input type="checkbox"/> |
| Equipment: | | Precipitators | <input type="checkbox"/> |
| Absorption equipment | <input type="checkbox"/> | Purifiers: | |
| Autoclaves | <input type="checkbox"/> | Extractor columns | <input type="checkbox"/> |
| Clarifiers | <input type="checkbox"/> | Grease extractors | <input type="checkbox"/> |
| Setting tanks | <input type="checkbox"/> | Solvent extractors | <input type="checkbox"/> |
| Calciners | <input type="checkbox"/> | Purification towers | <input type="checkbox"/> |
| Concentrators | <input type="checkbox"/> | Gas scrubbers | <input type="checkbox"/> |
| Thickeners | <input type="checkbox"/> | Oil scrubbers | <input type="checkbox"/> |
| Condensers | <input type="checkbox"/> | Caustic wash units | <input type="checkbox"/> |
| Converters | <input type="checkbox"/> | Deoxidizers | <input type="checkbox"/> |
| Crystallizers | <input type="checkbox"/> | Regenerators | <input type="checkbox"/> |
| Refrigerated crystallizers | <input type="checkbox"/> | Reactors: | |
| Culturing equipment | <input type="checkbox"/> | Catalytic reactors | <input type="checkbox"/> |
| Digestors | <input type="checkbox"/> | Chemical reactor vats | <input type="checkbox"/> |
| Dissolvers | <input type="checkbox"/> | Saturators | <input type="checkbox"/> |
| Dehydrators | <input type="checkbox"/> | Separating equipment: | |
| Diffusers | <input type="checkbox"/> | Acidulation tanks | <input type="checkbox"/> |
| Distilling equipment: | <input type="checkbox"/> | Gravity separators | <input type="checkbox"/> |
| Fractionating towers | <input type="checkbox"/> | Weighing scales: | |
| Batch stills | <input type="checkbox"/> | Platform scales | <input type="checkbox"/> |
| Continuous processing stills | <input type="checkbox"/> | Balance scales | <input type="checkbox"/> |
| Semi-continuous processing stills | <input type="checkbox"/> | Weighing hoppers | <input type="checkbox"/> |
| Driers: | | Weighing tanks | <input type="checkbox"/> |
| Atmospheric driers: | | Other (specify) | <input type="checkbox"/> |
| Tunnel atmospheric driers | <input type="checkbox"/> | | |
| Room atmospheric driers | <input type="checkbox"/> | Work Aids: | |
| Cabinet atmospheric driers | <input type="checkbox"/> | Meters: | |
| Rotary continuous driers | <input type="checkbox"/> | Hydrometer | <input type="checkbox"/> |
| Tunnel driers | <input type="checkbox"/> | Calorimeter | <input type="checkbox"/> |
| Vacuum drum driers | <input type="checkbox"/> | Salinometer | <input type="checkbox"/> |
| Centrifugal driers | <input type="checkbox"/> | Manometer | <input type="checkbox"/> |
| Steam driers | <input type="checkbox"/> | Viscometer | <input type="checkbox"/> |
| Hot water type driers | <input type="checkbox"/> | Titrometer | <input type="checkbox"/> |
| Hot air type driers | <input type="checkbox"/> | Turbidimeter | <input type="checkbox"/> |
| Spray driers | <input type="checkbox"/> | Ph meter | <input type="checkbox"/> |
| Evaporators | <input type="checkbox"/> | Flowmeter | <input type="checkbox"/> |
| Granulators | <input type="checkbox"/> | Refractometer | <input type="checkbox"/> |
| Gas generators | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Kettles: | | | |
| Compounding kettles | <input type="checkbox"/> | | |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

Manuals:

- Processing manuals
- Equipment operation manuals
- Safety manuals
- Technical manuals
- Other (specify)

Schedules:

- Production schedules
- Processing schedules
- Work schedules
- Other (specify)

Specifications:

- Processing specifications

- Material specifications
- Product specifications
- Other (specify)

Formulas:

- Chemical material formulas
- Compounding formulas
- Product formulas
- Other (specify)

- Station logs
- Production forms
- Testing forms
- Other (specify)

PRODUCTS

Record an "X" to indicate type of product processed or manufactured.

Basic Industrial Chemicals:

Alkalines and chlorine:

- Caustic potash
- Caustic soda
- Sal soda
- Sodium hydroxide
- Other (specify)

Industrial gases:

- Acetylene
- Carbon dioxide
- Dry ice
- Helium
- Hydrogen
- Neon
- Nitrogen
- Other (specify)

Cyclic chemicals:

Cyclic intermediates:

- Azobenzene
- Naphthol
- Naphthalene
- Toulene
- Tuluol
- Other (specify)

Cyclic coal tar crudes:

- Light oils
- Coal tar
- Coal tar acids
- Creosote
- Tar
- Other (specify)

Pigments:

Inorganic pigments:

- Bone black
- Coloring pigments
- Lampblack
- Litharge
- Redlead pigment
- Zine oxide pigments
- Other (specify)

Organic pigments:

- Coloring pigments
- Eosine toners
- Food dyes and coloring
- Lake red "C" toners
- Other (specify)

Dyes:

- Color lakes and toners
- Acid dyes
- Stilbene dyes
- Nitro dyes
- Other (specify)

Non-cyclic organic chemicals:

- Acetone
- Denatured alcohol
- Citrates
- Monosodium glutamate
- Propylene
- Other (specify)

Industrial Inorganic Chemicals:

- Alums

PRODUCTS—Continued

- | | | | |
|------------------------------------|--------------------------|---------------------------------------|--------------------------|
| Ammonia liquor | <input type="checkbox"/> | Medicinal chemicals, botanical drugs: | |
| Boric acid | <input type="checkbox"/> | Caffeine | <input type="checkbox"/> |
| Brine | <input type="checkbox"/> | Cocaine | <input type="checkbox"/> |
| Metallic salts | <input type="checkbox"/> | Hormones | <input type="checkbox"/> |
| Calcium peroxide | <input type="checkbox"/> | Menthol | <input type="checkbox"/> |
| Rare earth metallic salts | <input type="checkbox"/> | Mercury compounds | <input type="checkbox"/> |
| Alkali metals | <input type="checkbox"/> | Sulfa drugs | <input type="checkbox"/> |
| Boron compounds | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Inorganic acids | <input type="checkbox"/> | | |
| Other (specify) | <input type="checkbox"/> | Pharmaceutical preparations: | |
| Chemical based products: | | Antacids | <input type="checkbox"/> |
| Plastics materials: | | Barbituates | <input type="checkbox"/> |
| Polyesters | <input type="checkbox"/> | Cold remedies | <input type="checkbox"/> |
| Casein plastics | <input type="checkbox"/> | Cough medicines | <input type="checkbox"/> |
| Regenerated cellulose | <input type="checkbox"/> | Elixirs | <input type="checkbox"/> |
| Vulcanized fibers | <input type="checkbox"/> | Laxatives | <input type="checkbox"/> |
| Resins | <input type="checkbox"/> | Ointments | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Suppositories | <input type="checkbox"/> |
| Synthetic Rubber: | | Tinctures | <input type="checkbox"/> |
| Butadiene-styrene copolymers | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Butyl rubber | <input type="checkbox"/> | Soaps and detergents: | |
| Vulcanizable elastomers | <input type="checkbox"/> | Soap | <input type="checkbox"/> |
| Non-vulcanizable elastomers | <input type="checkbox"/> | Synthetic organic detergents | <input type="checkbox"/> |
| Isobutylene-Isoprene rubbers | <input type="checkbox"/> | Inorganic alkaline detergents | <input type="checkbox"/> |
| Isoprene rubbers | <input type="checkbox"/> | Washing compounds | <input type="checkbox"/> |
| Polybutadiene rubbers | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Silicone rubbers | <input type="checkbox"/> | Speciality cleaning compounds: | |
| Other (specify) | <input type="checkbox"/> | Household ammonia | <input type="checkbox"/> |
| Cellulosic man-made fibers: | | Paint and wallpaper cleaners | <input type="checkbox"/> |
| Acetate fibers | <input type="checkbox"/> | Rug cleaners | <input type="checkbox"/> |
| Rayon fibers | <input type="checkbox"/> | Sweeping compounds | <input type="checkbox"/> |
| Cellulose fibers | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Nitrocellulose fibers | <input type="checkbox"/> | Polishing preparations: | |
| Viscose fibers | <input type="checkbox"/> | Automobile polishes | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Floor waxes | <input type="checkbox"/> |
| Synthetic organic fibers: | | Metal polishes | <input type="checkbox"/> |
| Acrylic fibers | <input type="checkbox"/> | Furniture polishes | <input type="checkbox"/> |
| Nylon fibers | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Polyester fibers | <input type="checkbox"/> | Sanitation preparations: | |
| Saran fibers | <input type="checkbox"/> | House deodorants | <input type="checkbox"/> |
| Vinyl chloride fibers | <input type="checkbox"/> | Fly sprays | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Insect powder | <input type="checkbox"/> |
| Biological drugs: | | Household rat and ant poisons | <input type="checkbox"/> |
| Serums | <input type="checkbox"/> | Moth repellants | <input type="checkbox"/> |
| Toxins | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Vaccines | <input type="checkbox"/> | Surface active and finishing agents: | |
| Venoms | <input type="checkbox"/> | Emulsifiers | <input type="checkbox"/> |
| Viruses | <input type="checkbox"/> | Leather finishing agents | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Wetting agents | <input type="checkbox"/> |

PRODUCTS—Continued

Penetrants
 Other (specify)

Sulfonated oils and fats:
 Sulfonated greases
 Soluble oils and greases
 Sulfonated fats and greases
 Other (specify)

Perfumes, cosmetics, and toilet preparations:
 Bath salts
 Colognes
 Dentifrices
 Deodorants
 Face powders
 Lipsticks
 Shampoos
 Perfumes
 Other (specify)

Paints, varnishes, and allied products:
 Calcimines
 Enamels
 Epoxy coatings
 Paint driers
 Paint removers
 Paints
 Primers
 Putty
 Varnishes
 Lacquers
 Other (specify)

Gum and wood chemicals:
 Naval stores
 Ethyl acetate
 Hardwood distillates
 Wood alcohol
 Pine oil
 Wood extracts
 Wood tars and oils
 Tanning extracts and materials
 Other (specify)

Agricultural chemicals:
 Organic fertilizers
 Phosphate fertilizers
 Plant foods
 Agricultural pesticides
 D.D.T.
 Fungicides

Animal dips
 Insecticides
 Other (specify)

Adhesives and gelatin:
 Cements
 Sizes
 Glue
 Mucilage
 Gelatin capsules
 Other (specify)

Explosives:
 Blasting powder
 Dynamite
 Fuses and detonators
 Gunpowder
 TNT
 Nitroglycerin
 Other (specify)

Printing inks:
 Gravure inks
 Duplicating inks
 Lithographic inks
 Printing inks
 Screen processing inks
 Other (specify)

Miscellaneous products:
 Carbon black
 Fatty acids
 Essential oils
 Bluing
 Flares
 Insulating compounds
 Oil treating compounds
 Fluxes
 Ammunition
 Plastic wood
 Parting compounds
 Signal flares
 Fireworks
 Waxes
 Writing inks and fluids
 Etching acids
 Lanolin
 Lighter fluids
 Pyrotechnic ammunition
 Distilled water
 Other (specify)



ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

Agriculture	<input type="checkbox"/>	Financial	<input type="checkbox"/>
Commercial:		Government	<input type="checkbox"/>
Business Service	<input type="checkbox"/>	Industrial	<input type="checkbox"/>
Food and Beverage	<input type="checkbox"/>	Insurance	<input type="checkbox"/>
Lodging Service	<input type="checkbox"/>	Legal	<input type="checkbox"/>
Personal Service	<input type="checkbox"/>	Library	<input type="checkbox"/>
Printing and Publishing	<input type="checkbox"/>	Medical Service	<input type="checkbox"/>
Repair Service	<input type="checkbox"/>	Military	<input type="checkbox"/>
Sales	<input type="checkbox"/>	Nonprofit	<input type="checkbox"/>
Communications	<input type="checkbox"/>	Office Service	<input type="checkbox"/>
Conservation	<input type="checkbox"/>	Recreation	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Social Service	<input type="checkbox"/>
Correctional	<input type="checkbox"/>	Subsurface and Space	<input type="checkbox"/>
Educational	<input type="checkbox"/>	Transportation	<input type="checkbox"/>
Entertainment	<input type="checkbox"/>	Utilities	<input type="checkbox"/>
Exhibition Center	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

ECONOMICS AND POLITICAL SCIENCE WORK

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Plans, organizes, and conducts:

Economic research and studies relating to:

- Solving problems arising from production and distribution of goods and services
- Agricultural problems pertaining to exploitation of rural resources
- Production and marketing farm products
- Nature of money credit, and credit instruments
- Operation of banks, financial institutions and money exchanges
- Relationship between quantity of money, credit, and purchasing power
- Production, distribution, and use of goods
- Organizational structure of business concerns and its relationship to marketing and production methods
- Movement of goods and commodities between nations
- Exchange controls and operation of foreign exchanges
- Nature and effect of labor legislation on labor force
- Pricing theories
- Effect of taxes and fiscal policy on national income and overall business activity
- Distribution of tax load among taxpayers
- Market conditions in local, regional, and national areas
- Geographic phases of economic activities which affect demand of goods
- Other (specify)

Political research and studies relating to:

- Origin, development, operation, and inter-relationships of political organizations
- Phenomena of political behavior
- Political philosophy and systematic theory
- Government institutions
- Public laws and administration
- Political party systems
- Creation of public opinion through communications media
- Relation of government and business
- International laws and relations
- National and international problems involving areal characteristics and territorial policies affecting internal or external political relationships
- Other (specify)

- Identifies and states nature, scope, and area of research
- Develops methods, techniques, and means of collecting data
- Directs and coordinates activities of research workers
- Organizes and conducts public opinion polls and surveys
- Compiles, analyzes, interprets, or evaluates data on:
 - Prices and pricing practices on commodities
 - Labor supply and demand, wages and hours, and productivity
 - Factors influencing economic trends

WHAT THE WORKER DOES—Continued

- Commodity market-trends relative to production and future consumption
- Factors involved in production, distribution, and use of commodities
- Effect of government regulations, restrictions or tariffs on:
- National economy
 - Industrial policy
 - Foreign trade balances
- International diplomacy, organization, and government
- International conventions and congresses
- Rules, principles, and cases in international law
- Mandates and sanctions
- Other (specify)
- Examines or investigates:
- Methods of financing, production costs and techniques, and marketing policies
 - Methods of lowering production and distribution costs
 - Farm credit structures and institutions
 - Banking methods and procedures
 - Foreign and domestic commodity exchange policies and practices
 - Agricultural transportation problems
 - Tariff and tax problems
 - Source of government income and expenditures
 - Results of public opinion surveys and polls
 - Other (specify)
- Obtains data by consulting:
- Government officials
 - Personnel of civic bodies
 - Personnel of research agencies
 - Personnel of political parties
 - Other (specify)
- Devises or devises:
- Monetary policies to establish and maintain desirable balances
 - International trade policies to effect favorable trade balances
 - Economic reasons for trade restrictions
 - Policies of investment and transfer of capital
 - New taxes and methods of collection to eliminate tax inequalities
 - Methods to utilize maximum assets and develop potential markets
- Arbitration and conciliation techniques to settle trade disputes
- Plans to predict cost and success factors
- Operations research methodology and mathematical formulations
- Plans for establishing domestic and international monetary policies
- Methods and policies for increasing efficiency of management and improving income
- Efficient operating methods to improve farm policies of government agencies and farm associations
- Agricultural policies to:
- Increase efficiency of farm management
 - Improve farm income
 - Effect favorable agricultural legislation
- Political theory
- Financial institutional techniques for regulation of:
- Lending rates
 - Fixing of interest or discount rates
- Other (specify)
- Forecasts:
- Labor trends
 - Economic trends
 - Direction and extent of price movements
 - Financial activities
 - Production and consumption of goods and crops
 - Political trends
 - Political activities
 - Other (specify)
- Acts as:
- Economic advisor or consultant to government agencies or industry
 - Arbitrator or conciliator in resolving labor-management problems
 - Political advisor to clients on policies
 - Other (specify)
- Advises governmental agencies and industry on:
- Economic problems affecting demand for goods as:
 - Potential markets
 - Optimum trade routes
 - Geographical features - Problems affecting:
 - Operating efficiency

WHAT THE WORKER DOES—Continued

- | | | | |
|---|--------------------------|---------------------------------------|--------------------------|
| Marketing methods | <input type="checkbox"/> | Petitions to have representatives for | |
| Fiscal problems | <input type="checkbox"/> | collective bargaining certified or | |
| Labor problems | <input type="checkbox"/> | decertified | <input type="checkbox"/> |
| Businesses or groups on tax legislation | | Reapportionment of government | |
| and tax problems | <input type="checkbox"/> | legislative personnel | <input type="checkbox"/> |
| Charges by government of unfair labor | | Other (specify) | <input type="checkbox"/> |
| practices by unions | <input type="checkbox"/> | | |

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | | | |
|--|--------------------------|---|--------------------------|
| Educational Personnel | <input type="checkbox"/> | Policy Making Boards | <input type="checkbox"/> |
| Government Personnel | <input type="checkbox"/> | International Trade Commissions | <input type="checkbox"/> |
| Agricultural Association Personnel | <input type="checkbox"/> | Scientific Personnel | <input type="checkbox"/> |
| Industry Management Personnel | <input type="checkbox"/> | Non-profit Organizational Personnel | <input type="checkbox"/> |
| Diplomatic Personnel | <input type="checkbox"/> | Civic Organization Personnel | <input type="checkbox"/> |
| Foreign Service Personnel | <input type="checkbox"/> | Research Assistants | <input type="checkbox"/> |
| Research Personnel | <input type="checkbox"/> | Poll and Survey Workers | <input type="checkbox"/> |
| Field Service Personnel | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

EDUCATION AND TRAINING

Record an "X" to indicate education or training required.

- | | | | |
|---|--------------------------|--|--------------------------|
| Agricultural Economics | <input type="checkbox"/> | Market Research Analysis | <input type="checkbox"/> |
| Business Economics | <input type="checkbox"/> | Operations Research | <input type="checkbox"/> |
| Business Economics and Statistics | <input type="checkbox"/> | Operations Research and Statistics | <input type="checkbox"/> |
| Economics | <input type="checkbox"/> | Political Science | <input type="checkbox"/> |
| Econometrics | <input type="checkbox"/> | Diplomacy and World Affairs | <input type="checkbox"/> |
| Business Statistics | <input type="checkbox"/> | Government | <input type="checkbox"/> |
| Financial Economics | <input type="checkbox"/> | International Public Administration | <input type="checkbox"/> |
| Government Economics | <input type="checkbox"/> | International Relations | <input type="checkbox"/> |
| Industrial Economics | <input type="checkbox"/> | International Service | <input type="checkbox"/> |
| International Economics | <input type="checkbox"/> | Politi Science/International Relations | <input type="checkbox"/> |
| Labor Economics | <input type="checkbox"/> | Politics in International Relations | <input type="checkbox"/> |
| Managerial Economics | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Economic Studies | <input type="checkbox"/> | | |

DEGREE

Record an "X" to indicate degree.

- | | | | |
|-----------|--------------------------|-----------|--------------------------|
| BA | <input type="checkbox"/> | MBE | <input type="checkbox"/> |
| MA | <input type="checkbox"/> | MS | <input type="checkbox"/> |
| PhD | <input type="checkbox"/> | MFS | <input type="checkbox"/> |

SUBJECTS AND COURSES

Record an "X" to indicate subjects or courses that develop skills for the occupation.

- | | | | |
|---------------------------------|--------------------------|-----------------------------------|--------------------------|
| Economics: | | Microeconomic Theory | <input type="checkbox"/> |
| Principles of Economics | <input type="checkbox"/> | Money and Banking | <input type="checkbox"/> |
| Fundamentals of Economics | <input type="checkbox"/> | Government and Business | <input type="checkbox"/> |
| Consumer Education | <input type="checkbox"/> | Economics of Transportation | <input type="checkbox"/> |

SUBJECTS AND COURSES—Continued

Public Utilities	<input type="checkbox"/>	Economic Issues and Policies	<input type="checkbox"/>
Agricultural Economics	<input type="checkbox"/>	Public Finance and Taxation	<input type="checkbox"/>
Regional Economics	<input type="checkbox"/>	Public Expenditures	<input type="checkbox"/>
Labor Economics	<input type="checkbox"/>	Labor Legislation and Contracts	<input type="checkbox"/>
Economics of Health	<input type="checkbox"/>	International Economic Theory and	
Public Finance	<input type="checkbox"/>	Practice	<input type="checkbox"/>
State and Local Finance	<input type="checkbox"/>	Pure Theory of International Trade	<input type="checkbox"/>
Development of American Economic		Urban, Regional, and Resources	
Institutions	<input type="checkbox"/>	Economics	<input type="checkbox"/>
Development of European Economic		Economics of the Communist Bloc	<input type="checkbox"/>
Institutions	<input type="checkbox"/>	Problems of Underdeveloped	
Economic Development	<input type="checkbox"/>	Countries	<input type="checkbox"/>
Comparative Economic Systems	<input type="checkbox"/>	Economic Development Planning	<input type="checkbox"/>
International Economics	<input type="checkbox"/>	Economics of Growth and Development	<input type="checkbox"/>
Economic Statistics	<input type="checkbox"/>	Mathematical Economics and Statistics	<input type="checkbox"/>
History of Economic Thought	<input type="checkbox"/>	National Income Accounts	<input type="checkbox"/>
Business Cycles	<input type="checkbox"/>	Econometrics	<input type="checkbox"/>
Monetary and Fiscal Policy	<input type="checkbox"/>	Econometrics of Planning and	
Urban Economic Problems	<input type="checkbox"/>	Development	<input type="checkbox"/>
Labor and the Law	<input type="checkbox"/>	Economic Research	<input type="checkbox"/>
Development of the Labor Movement	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Social Insurance	<input type="checkbox"/>		
Economics of Poverty	<input type="checkbox"/>	Political Science:	
International Trade and Finance	<input type="checkbox"/>	Introduction to Political Thought	<input type="checkbox"/>
Intermediate Income Price and		American Political Thought	<input type="checkbox"/>
Distribution Theory	<input type="checkbox"/>	Contemporary Political Ideologies	<input type="checkbox"/>
Taxation, Government Finance and		Asian Political Theory	<input type="checkbox"/>
Fiscal Policy	<input type="checkbox"/>	Elements of Roman Jurisprudence	<input type="checkbox"/>
State and Local Finance and Its		Constitution Development, Rights	
Administration	<input type="checkbox"/>	Constitution Development, Power	<input type="checkbox"/>
Money, Credit, and Banking	<input type="checkbox"/>	Modern Legal Systems	<input type="checkbox"/>
Personal Income, Expenditures, Savings		Jurisprudence	<input type="checkbox"/>
and Investment	<input type="checkbox"/>	Introduction to International	
International Economic Principles,		Politics	<input type="checkbox"/>
Problems, and Policies	<input type="checkbox"/>	Introduction to International Law	<input type="checkbox"/>
International Economic Integration	<input type="checkbox"/>	International Organization and	
Urban and Regional Economics	<input type="checkbox"/>	Administration	<input type="checkbox"/>
Economics of Health and Human		American Foreign Policy	<input type="checkbox"/>
Resources	<input type="checkbox"/>	Foreign Policies of the Major Powers	<input type="checkbox"/>
Economic History of Western		Soviet Foreign Policy	<input type="checkbox"/>
Civilization	<input type="checkbox"/>	National Security Policies	<input type="checkbox"/>
Comparative Economic Philosophies		Governments of Western Europe	<input type="checkbox"/>
and Planning	<input type="checkbox"/>	Governments and Politics of	
Communist Economic Organization and		Scandinavian Countries	<input type="checkbox"/>
Development	<input type="checkbox"/>	Government and Policies of USSR	<input type="checkbox"/>
Economics of Industrial Organization	<input type="checkbox"/>	Governments of Eastern Europe	<input type="checkbox"/>
Economics of Less Developed Countries		Governments and Politics of the	
Economic Fluctuations, Growth, and		Far East	<input type="checkbox"/>
Forecasting	<input type="checkbox"/>	Governments and Politics of	
Economic Processes in the Rise and		Southeast Asia	<input type="checkbox"/>
Fall of Civilizations	<input type="checkbox"/>	Governments of South America	<input type="checkbox"/>
Computer Applications in Economics	<input type="checkbox"/>	Inter-American Affairs	<input type="checkbox"/>
Introduction to Mathematical Economics		Governments and Politics in the	
and Econometrics	<input type="checkbox"/>	Near and Middle East	<input type="checkbox"/>
Introduction to Macro and Micro		Governments and Politics of	
Economic Theory	<input type="checkbox"/>	Sub-Saharan Africa	<input type="checkbox"/>

SUBJECTS AND COURSES—Continued

- | | | | |
|---|--------------------------|--|--------------------------|
| The Politics of Development | <input type="checkbox"/> | Executives and Bureaucracies | <input type="checkbox"/> |
| The American Government | <input type="checkbox"/> | Public Policies | <input type="checkbox"/> |
| The American Presidency | <input type="checkbox"/> | American Diplomacy | <input type="checkbox"/> |
| State Government | <input type="checkbox"/> | European Diplomacy | <input type="checkbox"/> |
| Urban and Regional Political Systems | <input type="checkbox"/> | International Relations of Latin | |
| American Local Government, Its | | America | <input type="checkbox"/> |
| Organization and Problems | <input type="checkbox"/> | Africa in International Affairs | <input type="checkbox"/> |
| Political Parties | <input type="checkbox"/> | Soviet Foreign Policy | <input type="checkbox"/> |
| Public Opinion | <input type="checkbox"/> | World Communist Movements | <input type="checkbox"/> |
| The Legislative Process | <input type="checkbox"/> | Formulation of American Foreign Policy | <input type="checkbox"/> |
| Political Behavior | <input type="checkbox"/> | Military Strategy and Foreign Policy | <input type="checkbox"/> |
| Introduction to Public Administration | <input type="checkbox"/> | International Organization | <input type="checkbox"/> |
| Public Organization and Management | <input type="checkbox"/> | Theory and Methodology in | |
| Administrative Justice and Lawmaking | <input type="checkbox"/> | International Relationships | <input type="checkbox"/> |
| Public Personnel Administration | <input type="checkbox"/> | Science, Technology and Politics | <input type="checkbox"/> |
| Public Financial Administration | <input type="checkbox"/> | International Communications Theory | <input type="checkbox"/> |
| Local Planning Law and Administration | <input type="checkbox"/> | Economic Analysis for International | |
| Comparative Public Administration | <input type="checkbox"/> | Relations | <input type="checkbox"/> |
| Research Methods in Political Science | <input type="checkbox"/> | International Systems Analysis | <input type="checkbox"/> |
| Political Analysis | <input type="checkbox"/> | Foreign Policy Analysis | <input type="checkbox"/> |
| Theory Building in Political Science | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Political Systems of Advanced | | | |
| Societies | <input type="checkbox"/> | | |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

- | | | | |
|-----------------------------------|--------------------------|--|--------------------------|
| Machines and Equipment: | | Balance of Trade Data | <input type="checkbox"/> |
| Computers | <input type="checkbox"/> | Credit Data | <input type="checkbox"/> |
| Adding Machines | <input type="checkbox"/> | Interest Data | <input type="checkbox"/> |
| Calculators | <input type="checkbox"/> | Investment Data | <input type="checkbox"/> |
| Typewriters | <input type="checkbox"/> | Tax Data | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Industrial Accident Data | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |
| Work Aids: | | Laws: | |
| Survey Data | <input type="checkbox"/> | Public Laws | <input type="checkbox"/> |
| Geographical Data | <input type="checkbox"/> | Labor Laws | <input type="checkbox"/> |
| Census Data | <input type="checkbox"/> | Industrial Accident Laws | <input type="checkbox"/> |
| Labor Supply Data | <input type="checkbox"/> | Tariffs | <input type="checkbox"/> |
| Research Data | <input type="checkbox"/> | Insurance Laws | <input type="checkbox"/> |
| Sales Data | <input type="checkbox"/> | International Laws | <input type="checkbox"/> |
| Consumer Data | <input type="checkbox"/> | Social Insurance Laws | <input type="checkbox"/> |
| Gross National Product Data | <input type="checkbox"/> | Tax Laws | <input type="checkbox"/> |
| Commodity Data | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Commodity Exchange Data | <input type="checkbox"/> | | |
| Tariff Data | <input type="checkbox"/> | Reports: | |
| Market Research Data | <input type="checkbox"/> | Consumer Reports | <input type="checkbox"/> |
| Market Trend Data | <input type="checkbox"/> | Financial Statements | <input type="checkbox"/> |
| International Trade Data | <input type="checkbox"/> | Annual Reports | <input type="checkbox"/> |
| Statistical Data | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Operations Research Data | <input type="checkbox"/> | | |
| Agricultural Data | <input type="checkbox"/> | International Trade Agreements: | |
| Intelligence Data | <input type="checkbox"/> | Fiscal Policy | <input type="checkbox"/> |
| Economic Forecast Data | <input type="checkbox"/> | | |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- | | | | |
|------------------------------|--------------------------|--------------------------|--------------------------|
| Tax Policy | <input type="checkbox"/> | Credit Instruments | <input type="checkbox"/> |
| Price Indexes | <input type="checkbox"/> | Statistical Tables | <input type="checkbox"/> |
| Foreign Policy | <input type="checkbox"/> | Slide Rules | <input type="checkbox"/> |
| Government Regulations | <input type="checkbox"/> | Political Polls | <input type="checkbox"/> |
| Surveys | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Opinion Polls | <input type="checkbox"/> | | |

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

- | | | | |
|-------------------------------|--------------------------|----------------------------|--------------------------|
| Agriculture | <input type="checkbox"/> | Financial | <input type="checkbox"/> |
| Commercial | <input type="checkbox"/> | Government Service | <input type="checkbox"/> |
| Business Service | <input type="checkbox"/> | Industrial | <input type="checkbox"/> |
| Food and Beverage | <input type="checkbox"/> | Insurance | <input type="checkbox"/> |
| Lodging Service | <input type="checkbox"/> | Legal | <input type="checkbox"/> |
| Personal Service | <input type="checkbox"/> | Library | <input type="checkbox"/> |
| Printing and Publishing | <input type="checkbox"/> | Medical Service | <input type="checkbox"/> |
| Repair Service | <input type="checkbox"/> | Military | <input type="checkbox"/> |
| Sales | <input type="checkbox"/> | Nonprofit | <input type="checkbox"/> |
| Communications | <input type="checkbox"/> | Office Service | <input type="checkbox"/> |
| Conservation | <input type="checkbox"/> | Recreation | <input type="checkbox"/> |
| Construction | <input type="checkbox"/> | Social Service | <input type="checkbox"/> |
| Correctional | <input type="checkbox"/> | Subsurface and Space | <input type="checkbox"/> |
| Educational | <input type="checkbox"/> | Transportation | <input type="checkbox"/> |
| Entertainment | <input type="checkbox"/> | Utilities | <input type="checkbox"/> |
| Exhibition Center | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

ELECTRICAL EQUIPMENT, APPARATUS, AND DEVICES MANUFACTURING

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates activities concerned with manufacturing of:

Electric power:

- Generators and components
- Distribution transformers
- Specialty transformers
- Storage batteries
- Wet cell
- Dry cell
- Switchgear
- Switchboard apparatus

Electric motors and motor components

Electrical:

- Industrial apparatus and components
- Industrial controls
- Household appliances and housewares
- Lighting and wiring products
- Communication equipment
- X-ray equipment
- Equipment for internal combustion engines

Electromedical equipment
Other (specify)

Supervises, and coordinates activities of, workers engaged in:

- Fabricating parts used in manufacturing of products
- Assembling parts into subassemblies or final product
- Installing electrical systems used for operating machines, machinery, and instruments
- Inspecting parts, assemblies, and products
- Testing assemblies and products
- Calibrating or adjusting operation of products
- Reworking defective or malfunctioning assemblies or products
- Other (specify)

Plans:

- Manpower requirements
- Work schedules
- Production schedules
- Assembly procedures
- Training of workers
- Inspection procedures
- Testing procedures

Prepares work schedules

Assigns workers to specific duties

Gives work directions to workers concerning assigned duties

WHAT THE WORKER DOES—Continued

- | | | | |
|---|--------------------------|---|--------------------------|
| Inspects work for conformance with specifications | <input type="checkbox"/> | Sets up machine for operation by other workers | <input type="checkbox"/> |
| Interprets production orders, specifications, drawings, and technical data for workers | <input type="checkbox"/> | Sets up and operates machines | <input type="checkbox"/> |
| Advises workers on methods and procedures for solving work problems | <input type="checkbox"/> | Controls operation of automatic machines | <input type="checkbox"/> |
| Enforces worker compliance with established work procedures, regulations and safety rules | <input type="checkbox"/> | Controls equipment to process materials | <input type="checkbox"/> |
| Evaluates worker performance | <input type="checkbox"/> | Tends preset-up automatic machines | <input type="checkbox"/> |
| Recommends personnel actions, such as promotions, discharges, and disciplinary actions | <input type="checkbox"/> | Feeds materials into machines or equipment | <input type="checkbox"/> |
| Requisitions materials, tools, and equipment | <input type="checkbox"/> | Offbears parts or products from machines or conveyors | <input type="checkbox"/> |
| Keeps production and worker performance records | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Prepares report on production activities | <input type="checkbox"/> | Installs, aligns, and secures in machine or equipment: | |
| Trains workers in: | | Die casting molds | <input type="checkbox"/> |
| Setting up and operating machines and equipment | <input type="checkbox"/> | Die sets | <input type="checkbox"/> |
| Subassembly methods and procedures | <input type="checkbox"/> | Rolls | <input type="checkbox"/> |
| Final assembly methods and procedures | <input type="checkbox"/> | Stops | <input type="checkbox"/> |
| Inspection methods and procedures | <input type="checkbox"/> | Guides | <input type="checkbox"/> |
| Repair or rework on assemblies and products | <input type="checkbox"/> | Holding fixtures | <input type="checkbox"/> |
| Coordinates: | | Cutters | <input type="checkbox"/> |
| Department activities with activities of other departments | <input type="checkbox"/> | Workpiece | <input type="checkbox"/> |
| Worker activities | <input type="checkbox"/> | Extrusion nozzles | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Spacers | <input type="checkbox"/> |
| Reviews, reads, or analyzes: | | Marking wheels | <input type="checkbox"/> |
| Production specifications | <input type="checkbox"/> | Revolving heads | <input type="checkbox"/> |
| Production orders | <input type="checkbox"/> | Take up reels | <input type="checkbox"/> |
| Assembly specifications | <input type="checkbox"/> | Coils or rolls of material | <input type="checkbox"/> |
| Blueprints | <input type="checkbox"/> | Welding electrodes | <input type="checkbox"/> |
| Inspection reports | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Testing reports | <input type="checkbox"/> | Threads material through: | |
| Rework orders | <input type="checkbox"/> | Rollers | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Guides | <input type="checkbox"/> |
| Determines: | | Hold downs | <input type="checkbox"/> |
| Material requirements | <input type="checkbox"/> | Fabricating unit | <input type="checkbox"/> |
| Parts requirements | <input type="checkbox"/> | Forming unit | <input type="checkbox"/> |
| Machine setups | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Jigs, fixtures, and holding devices required | <input type="checkbox"/> | Sets controls for specified: | |
| Subassembly methods and procedures | <input type="checkbox"/> | Temperature | <input type="checkbox"/> |
| Final assembly methods and procedures | <input type="checkbox"/> | Pressure | <input type="checkbox"/> |
| Inspection requirements | <input type="checkbox"/> | Vacuum | <input type="checkbox"/> |
| Testing requirements | <input type="checkbox"/> | Timing cycle | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Flow rates | <input type="checkbox"/> |
| | | Machine fabricating operations | <input type="checkbox"/> |
| | | Product forming operations | <input type="checkbox"/> |
| | | Product processing operations | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |
| | | Performs trial run on machine to verify setup | <input type="checkbox"/> |
| | | Moves levers and controls to: | |
| | | Start machine or equipment | <input type="checkbox"/> |

WHAT THE WORKER DOES—Continued

- Maintain specified tension on materials
- Reset guides, stops, or tool position
- Adjust operation of machine or equipment
- Fabricate product or part
- Process product or part
- Stop machine or equipment
- Other (specify)

Observes:

- Machine or equipment operation
- Panelboard readings
- Gages and meters
- Products produced for defects
- Action of electrical products tested
- Other (specify)

Fabricates parts or products, using hand or power tools and measuring instruments

Lays out:

- Reference lines or points
- Material cutting lines
- Locations for drilling holes
- Wiring pattern
- Wiring diagram
- Other (specify)

Drills, reams, or taps holes for mounting or assembly of:

- Components of products
- Subassemblies
- Controls
- Gages
- Meters
- Instruments
- Panelboards
- Switchboards
- Other (specify)

Assembles parts, assemblies, or final product by:

- Placing part in holding device or fixture
- Fitting parts together
- Setting clearances specified between parts
- Pressing bushings, pinions, or couplings on shafts
- Shrinking bushings on shaft, using heat
- Alining parts
- Fastening or securing parts or assemblies in place using:
 - Screws

- Pins
- Bolts and nuts
- Rivets
- Clamps
- Hangers
- Cotter keys
- Welds
- Soldering iron or gun
- Brazes
- Plastic compounds
- Other (specify)

Cutting:

- Insulating materials to specific size
- Wire to specified lengths
- Tubing or piping to specified lengths
- Other (specify)

Inserting:

Insulating material between:

- Commutator slots
- Plates of storage batteries
- Appliance panels
- Wires into terminals or connectors
- Plates in cases of storage batteries
- Other (specify)

Bending:

- Contacts or points into specified position
- Parts to prevent short circuits between electrical parts
- Tubing into specified contour for installation
- Structural parts of appliances to obtain specified alinement and fit
- Armatures to obtain specified straightness

Fitting:

- Carbon brushes to curve of commutator
- Stator coils to housing
- Bearings to shafts or journals
- Other (specify)

- Stripping insulating material from wiring
- Wrapping insulating material around coils
- Dipping products into materials to seal or cover them

Connecting:

Wiring to specified:

- Controls
- Terminals
- Switches
- Assemblies

WHAT THE WORKER DOES—Continued

- | | | | |
|--|--------------------------|---|--------------------------|
| Timers | <input type="checkbox"/> | Readings on product under test | <input type="checkbox"/> |
| Panelboards | <input type="checkbox"/> | Action of assembly or product for | <input type="checkbox"/> |
| Switchboards | <input type="checkbox"/> | specified performance | <input type="checkbox"/> |
| Switching gear | <input type="checkbox"/> | Gages and meters for electrical | <input type="checkbox"/> |
| Leads to battery terminals | <input type="checkbox"/> | characteristics | <input type="checkbox"/> |
| Piping or tubing specified to | <input type="checkbox"/> | Evidences of malfunctioning | <input type="checkbox"/> |
| pumps or inlets | <input type="checkbox"/> | Analyzing test data to determine | <input type="checkbox"/> |
| Electrical assemblies or products to | <input type="checkbox"/> | cause of malfunction | <input type="checkbox"/> |
| testing equipment | <input type="checkbox"/> | Recording nature and type of defects | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | in log | <input type="checkbox"/> |
| Packing grease cups | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Lubricating bearings | <input type="checkbox"/> | Calibrates products by: | |
| Wrapping wire around mica to form | <input type="checkbox"/> | Adjusting calibration screws | <input type="checkbox"/> |
| heating coils | <input type="checkbox"/> | Resetting tensions on springs | <input type="checkbox"/> |
| Placing and securing plates or housings | <input type="checkbox"/> | Resetting temperature indicators | <input type="checkbox"/> |
| on products | <input type="checkbox"/> | Bending electrical contacts for | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | specified clearances | <input type="checkbox"/> |
| Inspects: | | Other (specify) | <input type="checkbox"/> |
| Materials or products for: | | Prepares orders for reworking: | |
| Surface defects | <input type="checkbox"/> | Parts having surface defects | <input type="checkbox"/> |
| Coating defects | <input type="checkbox"/> | Malfunctioning assemblies or products | <input type="checkbox"/> |
| Assemblies for: | | Parts not meeting dimensional | <input type="checkbox"/> |
| Quality of workmanship | <input type="checkbox"/> | specifications | <input type="checkbox"/> |
| Completeness and accuracy of | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| assembly | <input type="checkbox"/> | Reworks: | |
| Fit and relationship of parts | <input type="checkbox"/> | Parts to remove defects by: | |
| Loose and broken connections | <input type="checkbox"/> | Filing | <input type="checkbox"/> |
| Alinement of parts | <input type="checkbox"/> | Grinding | <input type="checkbox"/> |
| Conformance with sample assembly | <input type="checkbox"/> | Scraping | <input type="checkbox"/> |
| Binding of moving parts | <input type="checkbox"/> | Lapping | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Truing | <input type="checkbox"/> |
| Measures: | | Straightening | <input type="checkbox"/> |
| Materials or products for conformance with | <input type="checkbox"/> | Rewiring parts | <input type="checkbox"/> |
| dimensional specifications | <input type="checkbox"/> | Securing loose connections | <input type="checkbox"/> |
| Plating or coating thicknesses on | <input type="checkbox"/> | Assemblies and products by: | |
| materials and parts | <input type="checkbox"/> | Disassembling unit or product | <input type="checkbox"/> |
| Clearances between moving parts of | <input type="checkbox"/> | Examining parts, connections, and | <input type="checkbox"/> |
| electrical contacts | <input type="checkbox"/> | assembly for defect | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Measuring clearances between parts | <input type="checkbox"/> |
| Tests part, assembly, or product by: | | or contacts | <input type="checkbox"/> |
| Setting controls for specified: | | Removing and replacing defective | <input type="checkbox"/> |
| Temperature | <input type="checkbox"/> | parts | <input type="checkbox"/> |
| Current or voltage | <input type="checkbox"/> | Soldering loose connections | <input type="checkbox"/> |
| Starting test equipment and observing: | | Reassembling unit or product | <input type="checkbox"/> |
| Readings on gages of testing equipment | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | | | |
|-----------------------------|--------------------------|----------------------------|--------------------------|
| Management | <input type="checkbox"/> | Inspection Personnel | <input type="checkbox"/> |
| Engineering Personnel | <input type="checkbox"/> | Testing Personnel | <input type="checkbox"/> |

WHAT THE WORKER DOES—Continued

- | | | | |
|-------------------------|--------------------------|-------------------------------|--------------------------|
| Supervisors | <input type="checkbox"/> | Helpers | <input type="checkbox"/> |
| Other Supervisors | <input type="checkbox"/> | Assembly Line Personnel | <input type="checkbox"/> |
| Workers | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

EDUCATION AND TRAINING

Record an "X" to indicate education or training requirements.

- | | | | |
|------------------------|--------------------------|---------------------------|--------------------------|
| Elementary | <input type="checkbox"/> | Vocational School | <input type="checkbox"/> |
| High School | <input type="checkbox"/> | Military Training | <input type="checkbox"/> |
| Junior College | <input type="checkbox"/> | On-the-job Training | <input type="checkbox"/> |
| Technical School | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

SUBJECTS AND COURSES

Record an "X" to indicate subjects or courses that develop a worker's skills.

- | | | | |
|--|--------------------------|---|--------------------------|
| Mathematics | <input type="checkbox"/> | Storage Cells | <input type="checkbox"/> |
| Applied Physics | <input type="checkbox"/> | Batteries | <input type="checkbox"/> |
| Algebra | <input type="checkbox"/> | Rectified AC Power Supply | <input type="checkbox"/> |
| Care and Use of Hand Tools | <input type="checkbox"/> | DC Circuit Analysis: | |
| Care and Use of Power Tools | <input type="checkbox"/> | Kirchoff's Law | <input type="checkbox"/> |
| Basic Electricity | <input type="checkbox"/> | Application to Series Circuits | <input type="checkbox"/> |
| Component Recognition: | | Application to Parallel Circuits | <input type="checkbox"/> |
| Physical Appearance | <input type="checkbox"/> | Application to Series-Parallel Circuits | <input type="checkbox"/> |
| Schematic Symbolization | <input type="checkbox"/> | DC Machinery: | |
| Prefixes Used for Electrical Units | <input type="checkbox"/> | DC Motors: | |
| Electrical Measuring Devices: | | Series Wound | <input type="checkbox"/> |
| Ammeter | <input type="checkbox"/> | Shunt Wound | <input type="checkbox"/> |
| Voltmeter | <input type="checkbox"/> | Compound Wound | <input type="checkbox"/> |
| Ohmmeter | <input type="checkbox"/> | Universal Wound | <input type="checkbox"/> |
| Multimeter | <input type="checkbox"/> | DC Generators: | |
| Protective Devices: | | Series | <input type="checkbox"/> |
| Fuses | <input type="checkbox"/> | Shunt | <input type="checkbox"/> |
| Circuit Breakers | <input type="checkbox"/> | Compound | <input type="checkbox"/> |
| Overload Relays | <input type="checkbox"/> | Armature Construction | <input type="checkbox"/> |
| Interlock Switches | <input type="checkbox"/> | Field Testing | <input type="checkbox"/> |
| Electrical Resistance | <input type="checkbox"/> | Introduction to AC Current: | |
| Ohm's Law | <input type="checkbox"/> | Instantaneous Value of AC | <input type="checkbox"/> |
| Electrical Circuits: | | Peak, Average, and Effective Value | |
| Series | <input type="checkbox"/> | of AC | <input type="checkbox"/> |
| Parallel | <input type="checkbox"/> | Phase Relationship to Voltage and Current | <input type="checkbox"/> |
| Series-Parallel Combination | <input type="checkbox"/> | Inductance, Reactance and Impedance: | |
| Types of Magnets | <input type="checkbox"/> | Fundamentals of Inductance | <input type="checkbox"/> |
| Magnetic Force | <input type="checkbox"/> | Voltage and Current Relationship | <input type="checkbox"/> |
| Magnetic Fields | <input type="checkbox"/> | Series Inductance-Resistance | |
| Shapes and Uses of Magnets | <input type="checkbox"/> | Relationship | <input type="checkbox"/> |
| Electromagnetism: | | Parallel Inductance-Resistance | |
| Magnetic Field Around Conductor | <input type="checkbox"/> | Relationship | <input type="checkbox"/> |
| Left Hand Rule | <input type="checkbox"/> | Effect of Frequency Changes on Reactance | <input type="checkbox"/> |
| Field Between Two Conductors | <input type="checkbox"/> | Capacitive Reactance and Impedance | <input type="checkbox"/> |
| Magnetic Circuits | <input type="checkbox"/> | Fundamentals of Capacitance: | |
| Induction | <input type="checkbox"/> | Voltage and Current Relationship | <input type="checkbox"/> |
| Power Sources: | | Series and Parallel RC Circuits | <input type="checkbox"/> |
| Dry Cells | <input type="checkbox"/> | | |

SUBJECTS AND COURSES—Continued

- | | | | |
|-------------------------------------|--------------------------|---|--------------------------|
| AC Circuits: | | Principles of AC Machinery | <input type="checkbox"/> |
| Series RLC Circuits | <input type="checkbox"/> | Principles of AC Generators | <input type="checkbox"/> |
| Parallel RLC Circuits | <input type="checkbox"/> | Principles of Induction Motors | <input type="checkbox"/> |
| Power in AC Circuits | <input type="checkbox"/> | Principles of Synchronous Motors | <input type="checkbox"/> |
| Transformer Theory and Application: | | Principles of Single Phase Motors | <input type="checkbox"/> |
| Theory of Transformer Actions | <input type="checkbox"/> | Principles of Polyphase Motors | <input type="checkbox"/> |
| Turns Ratio | <input type="checkbox"/> | General Safety Precautions | <input type="checkbox"/> |
| Impedance Matching | <input type="checkbox"/> | Tools for Drilling, Tapping, Punching | <input type="checkbox"/> |
| Transformer Losses | <input type="checkbox"/> | Wire Connectors and Fasteners | <input type="checkbox"/> |
| Transformer Ratings | <input type="checkbox"/> | Stripping, Splicing, and Soldering | |
| Power Transformers | <input type="checkbox"/> | Wires and Connectors | <input type="checkbox"/> |
| Instrument Transformers | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Specialty Transformers | <input type="checkbox"/> | | |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

- | | | | |
|---------------------------------------|--------------------------|-------------------------------|--------------------------|
| Machines: | | Tools: | |
| Armature banding machines | <input type="checkbox"/> | Wrenches | <input type="checkbox"/> |
| Armature winding machines | <input type="checkbox"/> | Screwdrivers | <input type="checkbox"/> |
| Battery acid dumping machines | <input type="checkbox"/> | Files | <input type="checkbox"/> |
| Battery acid bottling machines | <input type="checkbox"/> | Pliers | <input type="checkbox"/> |
| Capping machines | <input type="checkbox"/> | Diagonals | <input type="checkbox"/> |
| Casting machines | <input type="checkbox"/> | Wire hooks | <input type="checkbox"/> |
| Cell tube forming machines | <input type="checkbox"/> | Picks | <input type="checkbox"/> |
| Clinching machines | <input type="checkbox"/> | Scribers | <input type="checkbox"/> |
| Coil taping machines | <input type="checkbox"/> | Wirecutters | <input type="checkbox"/> |
| Coil winding machines | <input type="checkbox"/> | Scissors | <input type="checkbox"/> |
| Conveyors | <input type="checkbox"/> | Hammers | <input type="checkbox"/> |
| Core insulating machines | <input type="checkbox"/> | Brushes | <input type="checkbox"/> |
| Coremaking machines | <input type="checkbox"/> | Wirestrippers | <input type="checkbox"/> |
| Crushers | <input type="checkbox"/> | Tube benders | <input type="checkbox"/> |
| Die casting machines | <input type="checkbox"/> | Pipe wrenches | <input type="checkbox"/> |
| Drill presses | <input type="checkbox"/> | Soldering iron | <input type="checkbox"/> |
| Dry cell battery machines | <input type="checkbox"/> | Soldering gun | <input type="checkbox"/> |
| Electrode cleaning machines | <input type="checkbox"/> | Leather mauls | <input type="checkbox"/> |
| Filling machines | <input type="checkbox"/> | Acetylene torch | <input type="checkbox"/> |
| Gettering filament machines | <input type="checkbox"/> | Crimping tools | <input type="checkbox"/> |
| Lathes | <input type="checkbox"/> | Staking tools | <input type="checkbox"/> |
| Lamination stacking machines | <input type="checkbox"/> | Tweezers | <input type="checkbox"/> |
| Lead burning machines | <input type="checkbox"/> | Flaring tools | <input type="checkbox"/> |
| Light bulb forming machines | <input type="checkbox"/> | Scrapers | <input type="checkbox"/> |
| Mixing machines | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Mills | <input type="checkbox"/> | | |
| Pasting machines | <input type="checkbox"/> | Equipment: | |
| Plate stacking machines | <input type="checkbox"/> | Heat treating | <input type="checkbox"/> |
| Plug wiring machines | <input type="checkbox"/> | Tempering | <input type="checkbox"/> |
| Screening and blending machines | <input type="checkbox"/> | Annealing | <input type="checkbox"/> |
| Spun paste machines | <input type="checkbox"/> | Ovens | <input type="checkbox"/> |
| Spraying machines | <input type="checkbox"/> | Furnaces | <input type="checkbox"/> |
| Undercut saw machines | <input type="checkbox"/> | Driers | <input type="checkbox"/> |
| Wire stranding machines | <input type="checkbox"/> | Scales | <input type="checkbox"/> |
| Wire twisting machines | <input type="checkbox"/> | Welding equipment | <input type="checkbox"/> |
| Wrapping machines | <input type="checkbox"/> | Encapsulating equipment | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

Work aids:

Measuring devices:

- Balance gage
- Dial indicator
- Feeler gage
- Thickness gage
- Thread gage
- Gage blocks
- Micrometers
- Straight edges
- Depth gages
- Shadowgraph
- Meters:
- Potentiometers
- Manometer
- Frequency meter
- Ammeter
- Voltmeter
- Multimeter
- Thermometer
- Hydrometer
- Other (specify)
- Loupes
- Oscilloscopes
- Oscillographs
- Electrical test stands
- Bridge gages

- Calibrating equipment
- Magnifying glasses
- Binocular microscopes
- Material testing equipment
- Other (specify)
- Acceptance slips
- Approval slips
- Rejection slips
- Blueprints
- Engineering drawings
- Wiring harness boards
- Inspection orders
- Inspection reports
- Production orders
- Production reports
- Formulas
- Assembly specifications
- Sample assemblies
- Holding devices
- Fixtures
- Jigs
- Schedules
- Calibration standards
- Salvage reports
- Rework orders
- Other (specify)

PRODUCTS

Record an "X" to indicate electrical equipment, apparatus, or devices manufactured.

Electric Motors and Generators:

- Armatures
- Coils
- Collector rings
- Converters:
- Frequency
- Phase
- Rotary
- Dynamotors
- Dynamos
- Exciter assemblies
- Generating apparatus and parts
- Generator sets:
- Gasoline
- Diesel
- Dual fuel
- Inverters
- Motors
- Power generators
- Railway motors and control equipment
- Resolvers
- Rotor retainers and housings

- Rotors
- Servo motors
- Slip rings
- Starters
- Synchronous condensers and timing
motors
- Synchros
- Torque motors
- Other (specify)

Transmission and Distribution

- Equipment:
- Power, Distribution, and Specialty:
- Transformers
- Autotransformers
- Control transformers
- Distribution transformers
- Electric furnace transformers
- Feeder voltage regulators and boosters
- Generator voltage regulators:
- Electric induction type
- Step type

PRODUCTS—Continued

- | | | | |
|---|--------------------------|---|--------------------------|
| Ignition transformers | <input type="checkbox"/> | Lighting carbons | <input type="checkbox"/> |
| Instrument transformers | <input type="checkbox"/> | Fuel cells (electro-chemical generator) | <input type="checkbox"/> |
| Lighting transformers | <input type="checkbox"/> | Industrial controls: | |
| Line voltage regulators | <input type="checkbox"/> | Armature relays | <input type="checkbox"/> |
| Luminous tube transformers | <input type="checkbox"/> | Electromagnetic: | |
| Machine tool transformers | <input type="checkbox"/> | Brakes | <input type="checkbox"/> |
| Ratio transformers | <input type="checkbox"/> | Clutches | <input type="checkbox"/> |
| Rectifier transformers | <input type="checkbox"/> | Motor controls | <input type="checkbox"/> |
| Regulators: | | Positioning controls | <input type="checkbox"/> |
| Transmission voltage regulators | <input type="checkbox"/> | Relays | <input type="checkbox"/> |
| Distribution voltage regulators | <input type="checkbox"/> | Solenoid switches | <input type="checkbox"/> |
| Signalling transformers | <input type="checkbox"/> | Timing apparatus | <input type="checkbox"/> |
| Toy transformers | <input type="checkbox"/> | Industrial electric truck controls | <input type="checkbox"/> |
| Tripping transformers | <input type="checkbox"/> | Inverters (non-rotating) | <input type="checkbox"/> |
| Voltage regulating transformers | <input type="checkbox"/> | Mercury arc rectifiers | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Power converters (AC to DC) | <input type="checkbox"/> |
| | | Static type | <input type="checkbox"/> |
| Switchgear and switchboard apparatus: | | Electric type | <input type="checkbox"/> |
| Busbar structures | <input type="checkbox"/> | Rectifiers | <input type="checkbox"/> |
| Circuit breakers: | | Series capacitors | <input type="checkbox"/> |
| Air | <input type="checkbox"/> | Static elimination equipment | <input type="checkbox"/> |
| Power | <input type="checkbox"/> | Thermo-electric generators | <input type="checkbox"/> |
| Control panels | <input type="checkbox"/> | Welding Equipment and Apparatus: | |
| Distribution boards | <input type="checkbox"/> | Arc welders | <input type="checkbox"/> |
| Distribution cutouts | <input type="checkbox"/> | Arc welding generators | <input type="checkbox"/> |
| Fuse clips and blocks | <input type="checkbox"/> | Electrode holders | <input type="checkbox"/> |
| Fuse devices (600 volts and over) | <input type="checkbox"/> | Electrodes | <input type="checkbox"/> |
| Fuse mountings | <input type="checkbox"/> | Resistance welders | <input type="checkbox"/> |
| Fuses | <input type="checkbox"/> | Seam welding apparatus | <input type="checkbox"/> |
| Generator control and metering panels | <input type="checkbox"/> | Spot welding apparatus | <input type="checkbox"/> |
| Knife switches | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Metering panels | <input type="checkbox"/> | | |
| Panelboards | <input type="checkbox"/> | Household Appliances: | |
| Power connectors | <input type="checkbox"/> | Electrical cooking equipment | <input type="checkbox"/> |
| Power switching equipment | <input type="checkbox"/> | Dishwashers | <input type="checkbox"/> |
| Time switches | <input type="checkbox"/> | Floor waxers and polishers | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Freezers: | |
| Electrical Industrial Equipment-Apparatus: | | Home | <input type="checkbox"/> |
| Battery chargers | <input type="checkbox"/> | Farm | <input type="checkbox"/> |
| Blasting machines | <input type="checkbox"/> | Garbage disposals | <input type="checkbox"/> |
| Capacitors | <input type="checkbox"/> | Refrigerators | <input type="checkbox"/> |
| Condensers: | | Sewing machines | <input type="checkbox"/> |
| Fixed | <input type="checkbox"/> | Vacuum cleaners | <input type="checkbox"/> |
| Variable | <input type="checkbox"/> | Water heaters | <input type="checkbox"/> |
| Motor | <input type="checkbox"/> | Laundry appliances: | |
| Generator | <input type="checkbox"/> | Driers | <input type="checkbox"/> |
| Carbon and graphite products: | | Ironers | <input type="checkbox"/> |
| Brush blocks | <input type="checkbox"/> | Washing machines | <input type="checkbox"/> |
| Brushes and brush block contacts | <input type="checkbox"/> | Trash compactors | <input type="checkbox"/> |
| Electrical carbon specialties | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Electric carbons | <input type="checkbox"/> | Electrical Housewares and Fans: | |
| Electrodes: | | Blenders | <input type="checkbox"/> |
| Thermal electrodes | <input type="checkbox"/> | Broilers | <input type="checkbox"/> |
| Electrolytic electrodes | <input type="checkbox"/> | Casseroles | <input type="checkbox"/> |
| | | Chafing dishes | <input type="checkbox"/> |

PRODUCTS—Continued

Coffee makers	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Corn poppers	<input type="checkbox"/>		
Dehumidifiers	<input type="checkbox"/>	Communication Equipment-Apparatus:	
Electric blankets	<input type="checkbox"/>	Carrier equipment	<input type="checkbox"/>
Fans:		Communication headgear	<input type="checkbox"/>
Ventilating fans	<input type="checkbox"/>	Data sets	<input type="checkbox"/>
Exhaust fans	<input type="checkbox"/>	Electronic secretary	<input type="checkbox"/>
Circulating fans	<input type="checkbox"/>	PBX equipment	<input type="checkbox"/>
Food mixers	<input type="checkbox"/>	Telegraph station equipment	<input type="checkbox"/>
Griddles	<input type="checkbox"/>	Telegraph office switching equipment	<input type="checkbox"/>
Grills	<input type="checkbox"/>	Telephone central office equipment	<input type="checkbox"/>
Heating pads	<input type="checkbox"/>	Telephone sets	<input type="checkbox"/>
Hot plates	<input type="checkbox"/>	Telephone station equipment	<input type="checkbox"/>
Juice extractors	<input type="checkbox"/>	Teletypewriters	<input type="checkbox"/>
Knives	<input type="checkbox"/>	Telewriters	<input type="checkbox"/>
Roasters	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Teakettles	<input type="checkbox"/>		
Vaporizers	<input type="checkbox"/>	X-ray Equipment:	
Waffle irons	<input type="checkbox"/>	Fluoroscopic	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Radiographic	<input type="checkbox"/>
		Therapeutic	<input type="checkbox"/>
Electric Lighting and Wiring Equipment:		X-ray tubes	<input type="checkbox"/>
Electric lamps:		Other (specify)	<input type="checkbox"/>
Electric light bulbs	<input type="checkbox"/>		
Electrotherapeutic lamps	<input type="checkbox"/>	Electromedical Equipment:	
Flash bulb	<input type="checkbox"/>	Electrocardiographs	<input type="checkbox"/>
Glow lamps	<input type="checkbox"/>	Electroencephalographs	<input type="checkbox"/>
Photoflash and photoslood lamps	<input type="checkbox"/>	Electrotherapeutic apparatus	<input type="checkbox"/>
Sealed beam lamps	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Strobotrons	<input type="checkbox"/>		
Current carrying devices:		Electrical Equipment for Internal Combustion	
Bus bars	<input type="checkbox"/>	Engines:	
Caps and plugs	<input type="checkbox"/>	Alternators	<input type="checkbox"/>
Connectors	<input type="checkbox"/>	Automobile	<input type="checkbox"/>
Contacts	<input type="checkbox"/>	Armatures	<input type="checkbox"/>
Cutouts	<input type="checkbox"/>	Coils	<input type="checkbox"/>
Circuit breakers	<input type="checkbox"/>	Distributors	<input type="checkbox"/>
Fluorescent starters	<input type="checkbox"/>	Generators	<input type="checkbox"/>
Lightning arrestors	<input type="checkbox"/>	Ignition systems	<input type="checkbox"/>
Plugs	<input type="checkbox"/>	Ignition cable sets	<input type="checkbox"/>
Sockets	<input type="checkbox"/>	Starters	<input type="checkbox"/>
Switches:		Voltage regulators	<input type="checkbox"/>
Snap	<input type="checkbox"/>	Lighting systems	<input type="checkbox"/>
Mercury	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

Agriculture	<input type="checkbox"/>	Printing and Publishing	<input type="checkbox"/>
Commercial:		Repair Service	<input type="checkbox"/>
Business Service	<input type="checkbox"/>	Sales	<input type="checkbox"/>
Food and Beverage	<input type="checkbox"/>	Communications	<input type="checkbox"/>
Lodging Service	<input type="checkbox"/>	Conservation	<input type="checkbox"/>
Personal Service	<input type="checkbox"/>	Construction	<input type="checkbox"/>

ENVIRONMENTAL SETTING—Continued

- | | | | |
|--------------------------|--------------------------|----------------------------|--------------------------|
| Correctional | <input type="checkbox"/> | Medical Service | <input type="checkbox"/> |
| Educational | <input type="checkbox"/> | Military | <input type="checkbox"/> |
| Entertainment | <input type="checkbox"/> | Nonprofit | <input type="checkbox"/> |
| Exhibition Center | <input type="checkbox"/> | Office Service | <input type="checkbox"/> |
| Financial | <input type="checkbox"/> | Recreation | <input type="checkbox"/> |
| Government Service | <input type="checkbox"/> | Social Service | <input type="checkbox"/> |
| Industrial | <input type="checkbox"/> | Subsurface and Space | <input type="checkbox"/> |
| Insurance | <input type="checkbox"/> | Transportation | <input type="checkbox"/> |
| Legal | <input type="checkbox"/> | Utilities | <input type="checkbox"/> |
| Library | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

ELECTRONIC COMPONENTS, EQUIPMENT, AND APPARATUS MANUFACTURING

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates activities concerned with manufacturing electronic:

- Communication equipment
- Components and accessories
- Detection or navigational equipment
- Entertainment equipment
- High energy equipment
- Industrial equipment
- Missile and space vehicle control equipment
- Multi-purpose equipment
- Semi-conductors and related devices
- Signaling equipment
- Television and radio equipment
- Other (specify)

Supervises, and coordinates activities of, workers engaged in:

Fabricating:

- Prototype or developmental electronic components
- Components for use in electronic equipment
- Processing components or products

Assembling:

- Electronic components
- Electronic components into subassemblies
- Electronic subassemblies into final product
- Installing assemblies and hardware in chassis and packages
- Inspecting components, assemblies, and products
- Testing components, assemblies, and products
- Calibrating components, assemblies, and products
- Reworking defective components, assemblies, or products
- Other (specify)

Plans:

- Manpower requirements
- Work schedules
- Production schedules
- Inspection schedules, methods, and procedures
- Testing schedules, methods, and procedures
- Assembly schedules, methods, and procedures
- Worker training requirements
- Prepares work schedules
- Assigns workers specific duties
- Gives work directions to workers concerning assigned duties
- Inspects work for conformance with specifications

WHAT THE WORKER DOES—Continued

- Interprets production orders, specifications, drawings, and technical data for workers
- Advises workers on methods and procedures for solving work problems
- Evaluates performance of workers
- Recommends:
 - Changes and modifications in processes, fabrication, and assembly activities
 - Personnel actions, such as promotions, discharges, and disciplinary actions
 - Acquisition of tools, machinery, and equipment
- Requisitions materials, tools, and equipment
- Prepares reports on:
 - Production activities
 - Testing activities
 - Inspection activities
- Trains workers in:
 - Setting up and operating machines and equipment to fabricate components
 - Controlling equipment to process components
 - Assembly methods, techniques and procedures
 - Inspection methods and procedures
 - Testing methods and procedures
 - Reworking defective components, assemblies, and products
- Coordinates:
 - Department activities with activities of other departments
 - Flow of material, components, and assemblies among work stations
 - Worker activities
 - Other (specify)
- Reviews, reads, or analyzes:
 - Product specifications
 - Production orders
 - Assembly specifications
 - Blueprints
 - Sample assemblies
 - Inspection reports
 - Test reports
 - Rework orders
 - Other (specify)
- Determines:
 - Material requirements
 - Components or assemblies required
 - Machine and equipment setup
 - Holding fixtures, jigs, and devices required
 - Assembly sequences and procedures
- Inspection sequences and procedures
- Testing sequences and procedures
- Machine and equipment requirements
- Other (specify)
- Sets up machines or equipment for other workers
- Sets up and operates machines or equipment
- Controls operation of automatic machines or equipment
- Controls processing equipment
- Tends preset machines or equipment
- Feeds machines or equipment
- Offbears materials, components, or products from automatic machines
- Other (specify)
- Installs, aligns, and secures in machines or equipment:
 - Die sets
 - Rolls
 - Stops
 - Guides
 - Workpiece
 - Coil winding arbor or mandrel
 - Welding electrodes
 - Other (specify)
- Threads material through:
 - Rollers
 - Guides
 - Holddowns
 - Tension devices
 - Fabricating unit
 - Forming unit
 - Processing unit
 - Other (specify)
- Sets controls for specified:
 - Temperature
 - Pressure
 - Vacuum
 - Timing cycle
 - Voltage
 - Current
 - Fabricating operation
 - Forming operation
 - Processing operation
 - Testing operation
 - Other (specify)
- Moves controls to:
 - Start machine or equipment
 - Begin fabricating operations
 - Begin processing operations
 - Reset guides, stops or tension devices

WHAT THE WORKER DOES-- Continued

- Adjust operation for obtaining specified performance
- Stop machine or equipment
- Other (specify)

Observes:

- Performance of machine or equipment for evidences of malfunctioning
- Gages
- Meters
- Recording indicators
- Other (specify)

- Fabricates, by hand, components used in electronic products

- Selects type and size of material specified for component

- Attaches end of wire to magnetic core, mandrel, or arbor

- Winds wire specified number of turns around core, mandrel, or arbor

- Removes wound coil from mandrel or arbor

Examines coil for:

- Bends
- Kinks
- Cracks in coating
- Concentricity
- Spacing

- Straightens coil or turns of wire on core

- Cuts wire to obtain coil of specified length

- Wraps insulating material around core and winds next layer of wire on material

- Brushes epoxy or cement on coil and wraps tape over cement

- Measures coil thickness for conformance with specifications

- Other (specify)

Assembles components, assemblies, or products:

- Obtains materials specified for assembly

- Positions component or assembly in holding fixture, jig, or device

- Fits components together following assembly specifications, diagram, or sample part

- Insures that component or assembly meets specifications for:

- Alignment
- Concentricity
- Clearance between parts

- Straightens, re-aligns, or bends components to meet specifications

- Fastens components or assembly in place, using

- Nuts

- Bolts

- Screws
- Solder
- Epoxy materials
- Thermo-compression bonding
- Brazes
- Welds

- Examines workpiece for defective fastening

- Discards or routes defective components, assemblies, or products for rework or salvage

- Routes acceptable components, assemblies, or products for inspection or testing

- Other (specify)

Installs and secures:

- Components in chassis

- Glass plate and picture mask on cabinet

- Assemblies in product chassis, shell, or package

- Hardware and accessories to finish assembly of product

- Wiring harness

- Other (specify)

Computes:

- Variation in length of wire to obtain specified resistance

- Trimming required on component to obtain specified resistance

- Size of wire required for obtaining specified resistance

- Differences in weight of coated and uncoated components

- Other (specify)

Inspects components, assemblies, or products for:

- Defective workmanship

- Conformance with assembly specifications

- Surface defects

- Loose or broken parts, connections, or wiring

- Quality of coating or plating

- Other (specify)

Measure:

- Thickness of coating or plating on materials or components

- Components for conformance with dimensional specifications

- Clearances between components

- Other (specify)

WHAT THE WORKER DOES - Continued

Tests components, assemblies, or products for:

- Continuity of circuitry
- Specified voltage
- Specified current
- Electrical characteristics
- Simulated operating parameters
- Overload or over voltage conditions
- Leakage
- Gas
- Shorts
- Grading products according to test results
- Conformance with operational specifications
- Other (specify)

Calibrates components or products by:

- Adjusting tuning circuits to obtain maximum signal response
- Tuning receivers to obtain specified picture
- Adding or cutting material from component to obtain specified resistance
- Abrading material to obtain specified frequency
- Other (specify)

Reworks components, assemblies, and products:

- Disassembles defective unit
- Replaces defective component
- Reassembles unit
- Routes unit for testing
- Record nature of defect and repairs performed
- Other (specify)

Ages tubes to stabilize electrical characteristics

Exhausts tubes to remove gases and other foreign matter

Etches circuit boards

Electroplates materials and products

Heats components in furnace to:

- Remove moisture and impurities
- Sinter fire metalized coatings
- Braze parts together
- Anneal parts

Prepares solutions for cleaning, etching, and electroplating

Other (specify)

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | |
|--|--|
| Management <input type="checkbox"/> | Workers <input type="checkbox"/> |
| Supervisors <input type="checkbox"/> | Technicians <input type="checkbox"/> |
| Quality Control Personnel <input type="checkbox"/> | Other (specify) <input type="checkbox"/> |
| Engineering Personnel <input type="checkbox"/> | |

EDUCATION AND TRAINING

Record an "X" to indicate education and training requirements.

- | | |
|---|--|
| Elementary <input type="checkbox"/> | Military School <input type="checkbox"/> |
| High School <input type="checkbox"/> | On-the-job Training <input type="checkbox"/> |
| Junior College <input type="checkbox"/> | Other (specify) <input type="checkbox"/> |
| Technical School <input type="checkbox"/> | |

SUBJECTS AND COURSES

Record an "X" to indicate subjects and courses that develop a worker's skills.

Trade related subjects:

- Mathematics
- Applied Physics
- Algebra
- Trigonometry
- Care and Use of Handtools
- Care and Use of Power Tools

- Care and Use of Measuring Devices
- Care and Use of Testing Equipment
- Basic Electricity
- Component Recognition
- Physical Appearance
- Schematic Symbolization
- Electrical Measuring Devices

SUBJECTS AND COURSES - Continued

- Protective Devices
- Electrical Resistance
- Ohm's Law
- Electrical Circuits
- Types of Magnets
- Magnetic Force
- Magnetic Field
- Shapes and Uses of Magnets
- Electromagnetism
- Electrostatics
- Inductance
- Capacitance
- Network Analysis
- Circuits and Resonance
- Science, Matter, and Measurement
- Sound Energy
- Light Energy
- Other (specify)

Electronics:

- Transformer Principles
- Electron Emission
- Diode Construction
- Diode Characteristics
- Rectifier Circuits
- Filter Circuits
- Regulator Circuits
- Triode Characteristics
- Triode Amplifiers
- Tetrode Amplifiers
- Pentode Amplifiers
- Paraphase Amplifier Circuits
- Beam Power Amplifiers
- Audio Power Amplifiers
- Decibels
- Microphones and Speakers
- Oscillator Principles
- Oscillator Circuits and Application
- Transmitters
- Antennas and Wave Propagation
- Solid State Physics
- Semiconductor Principles
- PN Junction Rectifiers
- Solid State Regulators
- Two Junction Transistors

- Integrated Circuitry
- Communications
- Radar Equipment
- IFF Equipment
- Electronic Countermeasures
- Electronic Test Equipment
- Sonar Systems
- Radar Systems
- Radar Power Supplies
- Radar Receivers
- Radar Transmitters
- Radar Antennas and Transmission Lines
- Servo Mechanisms
- Transducers
- Scanning Switches
- Pre-amplifiers and Amplifiers
- Sonar Indicators
- Communication Receivers
- Receiver Converter Equipment
- Communication Transmitters
- Antenna Tuners, Couplers, and
Multicouplers
- Planned Position Indicators
- Interface Systems
- Range Height Analysis
- Linear System Analysis
- Power Circuit Analysis
- Microwaves
- Network Synthesis
- Network Theory
- Computer Logic and Circuits
- Feedback Control Systems
- Industrial Electronics
- Electronic Amplifiers
- Computer Design
- Lasers and Masers
- Wave Guides and Resonators
- Linear Active Circuits
- Dielectrics
- Semiconductor Devices
- Theory of Semiconductors
- Random Signals and Filter Theory
- Electron Tube Theory
- Transistor Circuits
- Other (specify)

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

Machines:

- Aperture masking machine
- Ball bonding machine
- Base filling machine
- Bulb punch out machine

- Cleaning machine
- Coding machine
- Eutric bonding machine
- Grinders
- Lapping machine

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS - Continued

- Glass lathe
- Leak detector machine
- Pin inserting machine
- Presses
 - Drill presses
 - Punch presses
 - Arbor presses
- Resistor trimming machine
- Spinning machine
- Spraying machine
 - Cathode spraying machine
- Pumps
 - Air pumps
 - Vacuum pumps
- Vacuum metalizing machine
- Tube flaring machine
- Stitch bonding machine
- Router
- Winding machine
 - Coil winding machine
 - Spade winding machine
 - Universal winding machine
- Other (specify)

Tools:

- Knives
- Spatulas
- Medicine dropper
- Soldering iron
- Soldering gun
- Tweezers
- Brushes
- Chassis punches
- Diagonal wire cutters
- Long nosed pliers
- Nut drivers
- Screwdrivers
- Wrenches
- Wire strippers
- Wire cutters
- Scissors
- Picks
- Files
- Rivet gun
- Tube nip-off gun
- Vacuum quill
- Other (specify)

Equipment:

- Ovens
- Furnaces:
 - Annealing furnaces
 - Carbonizing furnaces
 - Lehrs
 - Retort furnaces

- Hydrogen furnaces
- Diffusion furnaces
- Brazing equipment:
 - Radio frequency brazing equipment
 - Induction brazing equipment
- Radio frequency aging equipment
- Generators:
 - Signal generators
 - Power generators
- Tube bonding equipment
- Etching equipment
- Balance scales
- Photoengraving equipment
- Wave soldering equipment
- Tube exhausting pumping equipment
- Digital frequency counters
- Variable electronic filters
- Amplifiers
- Temperature compensation chambers
- Welders:
 - Helic arc welders
 - Resistance welders
 - Tweezer welders
- Encapsulating equipment
- Other (specify)

Work aids:

Mechanical measuring devices:

- Go-no-go gage
- Micrometers
- Calipers
- Dial indicators
- Millimeter scale

Electrical measuring devices:

- Ohmmeters
- Voltmeters
 - Digital voltmeters
- Ammeter
- Volt-ohmmeter
- Vacuum-tube-voltmeter
- Multimeter
- Digital ohmmeter
- Inductance bridge gage
- Megger
- Wave analyzer
- Circuit analyzer
- Wave form analyzer
- Oscilloscopes
- Galvanometer
- Synchroscope
- Wave meters
- Wheatstone bridge
- Milliammeters

Optical instruments:

- Optical comparator

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS - Continued

Optical pyrometer	<input type="checkbox"/>	Schematics	<input type="checkbox"/>
Microscope	<input type="checkbox"/>	Test probes	<input type="checkbox"/>
Optical interferometer	<input type="checkbox"/>	Blueprints	<input type="checkbox"/>
Binoocular microscope	<input type="checkbox"/>	Job loaders	<input type="checkbox"/>
Toolmaker's microscope	<input type="checkbox"/>	Rework orders	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Inspection reports	<input type="checkbox"/>
Miscellaneous work aids:		Pictorial blueprints	<input type="checkbox"/>
Templates	<input type="checkbox"/>	Harness wiring boards	<input type="checkbox"/>
Parts lists	<input type="checkbox"/>	Black light boxes	<input type="checkbox"/>
Scale charts	<input type="checkbox"/>	Procedure manuals	<input type="checkbox"/>
Wiring diagrams	<input type="checkbox"/>	Wire lists	<input type="checkbox"/>
Product specifications	<input type="checkbox"/>	Catalogs	<input type="checkbox"/>
Testing schedules	<input type="checkbox"/>	Color-code guides	<input type="checkbox"/>
Sample parts	<input type="checkbox"/>	Process sheets	<input type="checkbox"/>
Sample assemblies	<input type="checkbox"/>	Report forms	<input type="checkbox"/>
Magnifying glasses	<input type="checkbox"/>	Production reports	<input type="checkbox"/>
Silk screens	<input type="checkbox"/>	Production schedules	<input type="checkbox"/>
Test data report forms	<input type="checkbox"/>	Inspection criteria sheets	<input type="checkbox"/>
Boats	<input type="checkbox"/>	Quality assurance forms	<input type="checkbox"/>
Engineering sketches	<input type="checkbox"/>	Slide rules	<input type="checkbox"/>
Topological drawings	<input type="checkbox"/>	Tube data cards	<input type="checkbox"/>
		Other (specify)	<input type="checkbox"/>

PRODUCTS

Record an "X" to indicate component, equipment, or device produced.

Communications equipment:		Cartridges:	
Facsimile equipment	<input type="checkbox"/>	Magnetic tape	<input type="checkbox"/>
Intercommunications equipment	<input type="checkbox"/>	Phonograph	<input type="checkbox"/>
Laser systems and equipment	<input type="checkbox"/>	Cavities microwave:	
Phototransmission equipment	<input type="checkbox"/>	Oscillating	<input type="checkbox"/>
Pulsed electron guns	<input type="checkbox"/>	Amplifying	<input type="checkbox"/>
Radio receiver networks	<input type="checkbox"/>	Chokes	<input type="checkbox"/>
Radio telegraph equipment	<input type="checkbox"/>	Choppers	<input type="checkbox"/>
Radio telephone equipment	<input type="checkbox"/>	Chromotographs	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Circuit boards	<input type="checkbox"/>
Components and accessories:		Coils	<input type="checkbox"/>
Absorbers	<input type="checkbox"/>	Commutators	<input type="checkbox"/>
Accelerators	<input type="checkbox"/>	Comparators	<input type="checkbox"/>
Actuators	<input type="checkbox"/>	Condensers	<input type="checkbox"/>
Adapters	<input type="checkbox"/>	Connectors	<input type="checkbox"/>
Alarms	<input type="checkbox"/>	Consoles	<input type="checkbox"/>
Amplifiers	<input type="checkbox"/>	Constant impedance transformers	<input type="checkbox"/>
Analyzers	<input type="checkbox"/>	Controls	<input type="checkbox"/>
Annunciators	<input type="checkbox"/>	Converters	<input type="checkbox"/>
Antennas	<input type="checkbox"/>	Cooling units	<input type="checkbox"/>
Antennators	<input type="checkbox"/>	Cores	<input type="checkbox"/>
Baluns	<input type="checkbox"/>	Couplers	<input type="checkbox"/>
Boards	<input type="checkbox"/>	Crystal assemblies	<input type="checkbox"/>
Breadboards	<input type="checkbox"/>	Crystals	<input type="checkbox"/>
Cables	<input type="checkbox"/>	Piezoelectric crystals	<input type="checkbox"/>
Capacitors	<input type="checkbox"/>	Decoders	<input type="checkbox"/>

PRODUCTS—Continued

- Delay lines:
 - Heat emission detectors
 - Infra-red field detectors
 - Light emission detectors
 - Magnetic field detectors
 - Ultra-violet-ray emission detectors
- Door control devices:
 - Radio
 - Photoelectric cell
- Highway signals
- Light and heat operating units
- Loran equipment
- Inertial guidance systems
- Radio direction finders
- Radio beacons
- Radio compasses
- Radiosondes
- Sonar equipment
- Avionic equipment
- Air traffic control systems
- Other (specify)
- Entertainment equipment:
 - Audio systems
 - Amplifiers:
 - Musical instrument
 - Public address
 - High fidelity
 - Antennas
 - Radio receiving:
 - Automobile
 - Portable
 - Television/frequency modulated:
 - Boosters
 - Distribution systems
 - Rotators
 - Coin operated phonographs
 - Home recorders:
 - Cassette
 - Disc
 - Tape
 - Music operated:
 - Color systems
 - Light displays
 - Strobes
 - Music and paging systems
 - Phonograph:
 - Pick-up cartridges
 - Record cutting styli
 - Replacement styli
 - Turntables
 - Phonographs
 - Public address systems
 - Radio receiver sets
 - Sound systems
 - Sound reproducing systems
- Speaker monitors
- Speakers:
 - Electro dynamic
 - Electrostatic
 - Magnetic
 - Pillow stereo
- Stereo earphones and accessories
- Stereo sets
- Tape players
- Tape recorders
- Television
- Home closed circuit system:
 - Recording system
 - Playback system
- Receiving sets
- Remote control devices
- Televisions
- Tuners
- Other (specify)
- High energy equipment:
 - Atom smashers
 - Betatrons
 - Cyclotrons
 - Linear accelerators
 - Particle accelerators
 - Other (specify)
- Industrial equipment
- Electron beam:
 - Cutting machines
 - Forming machines
 - Welding machines
- Precipitators
- Ultrasonic:
 - Amplifiers
 - Analyzers
 - Cleaners
 - Flaw detectors
 - Generators
 - Solderers
 - Sterilizers
 - Transducers
 - Welders
 - Other (specify)
- Demagnetizers
- Demodulators
- Demonstrators
- Detectors
- Diplexers
- Discriminators
- Displays
- Dividers
- Duplexers
- Echo boxes

PRODUCTS—Continued

- Enclosures
- Encoders
- Filters
- Fuses
- Gunn effect devices
- Harness assemblies
- Headers
- Impedance induction units
- Indicators
- Inductors
- Inverters
- Keys
- Magnetic recording tape
- Magnets
- Mixers
- Modulators
- Modules
- Networks
- Oscillators
- Passive repeaters
- Plotters
- Power supplies
- Printed circuits
- Protectors
- Pulse forming networks
- Reactors
- Recorders
- Reflectors
- Relays
- Repeaters
- Resonant reed devices
- Rings
- Scanners
- Seals
- Servos
- Shifters
- Shunts
- Solenoids
- Speakers
- Stabilizers, klystron
- Switches
- Switching matrixes
- Switching systems
- Synchronizers
- Synchros
- Tape decks
- Tapes
- Tees
- Terminal systems
- Terminals
- Terminations
- Thermistors
- Transducers
- Tube parts
- Tubes:
 - Cathode ray

- Ignition
- Image transfer
- Microwave:
 - Backward wave
 - Crossed field
 - Klystron
 - Magnetron
 - Traveling wave
- Noise source
- Photo tubes
- Power amplifying
- Rectifying:
 - Gas filled
 - Vacuum
- Thyratron
- Transmitting
- X-ray
- Tuners
- Vacuum systems
- Valves
- Varistors
- Vibrators
- Voice controls
- Wave guide assemblies
- Wave guide structures
- Other (specify)

- Detection/Navigational equipment:
 - Countermeasures equipment
 - Detection apparatus
 - Electronic field detectors
- Missile and space control equipment:
 - Missile control systems
 - Missile fuel management systems
 - Telemetry systems
 - Other (specify)

- Multi-purpose equipment
- Computers:
 - Analog computers
 - Digital computers
- Digital encoders
- Cryogenic equipment
- Magnetic analysis equipment
- Oscilloscopes
- Television closed circuit:
 - Educational systems
 - Industrial systems
 - Medical systems
 - Monitor systems
- Training devices:
 - Flight simulators
 - Teaching machines
 - Weapon simulators
 - Other (specify)

PRODUCTS—Continued

Semiconductors and related devices	<input type="checkbox"/>	Strain gages	<input type="checkbox"/>
Computer logic modules:		Thermionic devices	<input type="checkbox"/>
Emitter followers	<input type="checkbox"/>	Thermoelectric devices	<input type="checkbox"/>
Flip flops	<input type="checkbox"/>	Magnetohydrodynamic devices	<input type="checkbox"/>
Gates	<input type="checkbox"/>	Transistors	<input type="checkbox"/>
Inverters	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Magnetic:		Signaling equipment:	
Shifts	<input type="checkbox"/>	Control receivers	<input type="checkbox"/>
Registers	<input type="checkbox"/>	Fire alarm systems	<input type="checkbox"/>
Registers	<input type="checkbox"/>	Hydrophones	<input type="checkbox"/>
Diodes:		Photographic control systems	<input type="checkbox"/>
Parametric diodes	<input type="checkbox"/>	Underwater sound systems	<input type="checkbox"/>
Tunnel diodes	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Variable capacitance diodes	<input type="checkbox"/>	Television and radio equipment:	
Zener diodes	<input type="checkbox"/>	Control room equipment	<input type="checkbox"/>
Hall effect devices	<input type="checkbox"/>	Broadcasting equipment	<input type="checkbox"/>
Solid state devices:		Instant replay equipment	<input type="checkbox"/>
Controlled rectifiers	<input type="checkbox"/>	Color television tape equipment:	
Diodes	<input type="checkbox"/>	Recording equipment	<input type="checkbox"/>
Fuel cells	<input type="checkbox"/>	Reproducing equipment	<input type="checkbox"/>
Infra-red sensors	<input type="checkbox"/>	Monitoring equipment	<input type="checkbox"/>
Light sensitive devices	<input type="checkbox"/>	Kinescope equipment:	
Modules	<input type="checkbox"/>	Recording equipment	<input type="checkbox"/>
Monolithic integrated circuits	<input type="checkbox"/>	Reproducing equipment	<input type="checkbox"/>
Nuclear detectors	<input type="checkbox"/>	Transceivers	<input type="checkbox"/>
Photoelectric cells	<input type="checkbox"/>	Transmitting equipment	<input type="checkbox"/>
Photovoltaic devices	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Rectifiers	<input type="checkbox"/>		
Semi-conductor networks	<input type="checkbox"/>		
Integrated circuit transistors	<input type="checkbox"/>		

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

Agriculture	<input type="checkbox"/>	Financial	<input type="checkbox"/>
Commercial	<input type="checkbox"/>	Government Service	<input type="checkbox"/>
Business Service	<input type="checkbox"/>	Industrial	<input type="checkbox"/>
Food and Beverage	<input type="checkbox"/>	Insurance	<input type="checkbox"/>
Lodging Service	<input type="checkbox"/>	Legal	<input type="checkbox"/>
Personal Service	<input type="checkbox"/>	Library	<input type="checkbox"/>
Printing and Publishing	<input type="checkbox"/>	Medical Service	<input type="checkbox"/>
Repair Service	<input type="checkbox"/>	Military	<input type="checkbox"/>
Sales	<input type="checkbox"/>	Nonprofit	<input type="checkbox"/>
Communications	<input type="checkbox"/>	Office Service	<input type="checkbox"/>
Conservation	<input type="checkbox"/>	Recreation	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Social Service	<input type="checkbox"/>
Correctional	<input type="checkbox"/>	Subsurface and Space	<input type="checkbox"/>
Educational	<input type="checkbox"/>	Transportation	<input type="checkbox"/>
Entertainment	<input type="checkbox"/>	Utilities	<input type="checkbox"/>
Exhibition Center	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

FABRICATED PLASTICS MANUFACTURING

Inventory

WHAT THE WORKER DOES

Below are listed activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates production activities concerned with:

- Manufacture of fabricated plastics products
- Providing fabricated plastics components or products services on fee basis
- Other (specify)

Supervises, and coordinates activities of, workers engaged in:

- Setting up machines or equipment for fabricating plastics products
- Setting up and operating plastics processing machines and equipment
- Tending pre-setup plastics processing and fabricating machines
- Hand-finishing plastics products
- Laminating plastics to produce preforms of plastics products
- Quality control of fabricated plastics components or products
- Other (specify)

Plans:

- Manpower requirements
- Work schedules
- Machine requirements
- Production schedules
- Production activities
- Training for workers
- Quality control procedures and practices
- Other (specify)

- Prepares work schedules
- Assigns workers to duties
- Gives workers directions for performing assigned duties
- Interprets production orders, product specifications, and technical data for workers
- Inspects products for conformance with manufacturing specifications
- Enforces workers' compliance with work procedures, regulations, and safety rules
- Evaluates worker performance
- Advises workers on methods of solving work problems
- Recommends personnel action on workers
- Requisitions materials, tools, and work aids
- Keeps production and worker performance records
- Prepares reports on production activities

Trains workers in:

- Performing assigned duties
- Setup and operation of machines and equipment
- Safety practices and regulations

Coordinates:

- Department activities with activities of other departments

WHAT THE WORKER DOES—Continued

- Worker activities
- Other (specify)

- Studies or analyzes:

 - Production orders
 - Product specifications
 - Sketches, diagrams, or blueprints
 - Quality control reports
 - Other (specify)

- Plans:

 - Machine requirements
 - Work sequences
 - Hand operations required
 - Assembly procedures
 - Machining requirements
 - Finishing requirements
 - Quality control procedures and methods
 - Other (specify)

- Determines:

 - Setup of machines
 - Type of plastics materials to be used
 - Type of molding methods to be used
 - Temperatures, pressures, and speed to be used during production
 - Other (specify)

- Sets up automatic machines or machines for other workers
- Sets up and operates machines
- Operates or controls machine from panelboard or console
- Tends pre-setup or automatic machines
- Assists worker in operating machines or equipment
- Feeds materials into or offbears products from machines
- Other (specify)

- Installs, aligns, and secures in machine:

 - Molds
 - Cutting dies
 - Extrusion dies
 - Sizing rings
 - Stops
 - Guides
 - Jigs or holding fixtures
 - Other (specify)

- Sets controls for specified:

 - Mold temperature
 - Preheating temperature
 - Pressure
 - Proportioning of materials

- Dispensing of materials into molds
- Rotational speed
- Material dehumidifying temperature
- Machine fabricating sequences
- Speed of plungers or screws
- Vacuum
- Timing cycle of fabricating operations
- Other (specify)

- Turns handwheels or moves controls to:

 - Set length of hydraulic ram stroke
 - Control rewind speed
 - Maintain specified tension or pull on materials
 - Adjust or regulate:

 - Vacuum
 - Air pressure
 - Sizing rings
 - Material feed speed

 - Synchronize post forming or pull off speed with machine operations
 - Feed tools onto workpiece
 - Start or stop fabricating operations
 - Start machine to obtain sample product
 - Other (specify)

- Observes:

 - Dials and gages for specified readings
 - Action of machine for evidences of malfunctioning
 - Other (specify)

- Examines molded or formed articles for defects, as:

 - Blistering
 - Porosity
 - Mold sticking
 - Dull surface
 - Orange peel
 - Pitted surface
 - Clouded or segregated surface
 - Dimpled surface
 - Warps
 - Cracks
 - Burned marks
 - Thick flash
 - Other (specify)

- Measures article for conformance with dimensional specifications
- Tests articles for conformance with contract specifications
- Lays out on material:

 - Pattern outlines
 - Template outlines

WHAT THE WORKER DOES—Continued

- | | | | |
|---|--------------------------|--|--------------------------|
| Cutting lines | <input type="checkbox"/> | Repairs and maintains plastics molding machines: | |
| Other (specify) | <input type="checkbox"/> | Observes action of machine to detect malfunction | <input type="checkbox"/> |
| Lays up fiber-glass and resin coat of fabrics for molding plastic products: | | Listens to operation of machine to locate malfunctioning | <input type="checkbox"/> |
| Cleans mold or form with solvents | <input type="checkbox"/> | Disassembles machine or machine section and removes defective part | <input type="checkbox"/> |
| Sprays form or mold with parting agents | <input type="checkbox"/> | Repairs or replaces defective part and reassembles machine | <input type="checkbox"/> |
| Cuts material to specified size | <input type="checkbox"/> | Tests machine for specified operational performance | <input type="checkbox"/> |
| Spreads compound over form and positions fabric on it | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Rubs fabric with squeegee to remove air bubbles | <input type="checkbox"/> | Performs tasks of unskilled nature in plastics fabrication plant: | |
| Applies additional layers of compound and fabric, as required | <input type="checkbox"/> | Removes molds from ovens | <input type="checkbox"/> |
| Trims edges of fabric and allows part to cure | <input type="checkbox"/> | Removes castings from molds | <input type="checkbox"/> |
| Removes laminated product from form or mold | <input type="checkbox"/> | Cleans molds | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Strips stamped, sealed, or cut plastic bodies from panels | <input type="checkbox"/> |
| Casts plastic articles: | | Colors products with vinyl inks | <input type="checkbox"/> |
| Coats mold sections with parting agents | <input type="checkbox"/> | Fastens, glues, or cements parts of products together | <input type="checkbox"/> |
| Assembles and secures sections of mold | <input type="checkbox"/> | Attaches metal parts to plastics products | <input type="checkbox"/> |
| Pours plastics compound in mold | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Heats mold to cure article | <input type="checkbox"/> | | |
| Removes cured article from mold | <input type="checkbox"/> | | |
| Trims flash from article, using knife or power handtools | <input type="checkbox"/> | | |
| Other (specify) | <input type="checkbox"/> | | |

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | | | |
|-----------------------------|--------------------------|-------------------------------------|--------------------------|
| Management | <input type="checkbox"/> | Helpers | <input type="checkbox"/> |
| Supervisors | <input type="checkbox"/> | Quality Control Personnel | <input type="checkbox"/> |
| Other Supervisors | <input type="checkbox"/> | Maintenance Personnel | <input type="checkbox"/> |
| Workers | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

EDUCATION AND TRAINING

Record an "X" to indicate education and training required.

- | | | | |
|--------------------------|--------------------------|-------------------------------|--------------------------|
| Elementary | <input type="checkbox"/> | Technical Training | <input type="checkbox"/> |
| High School | <input type="checkbox"/> | Vocational Training | <input type="checkbox"/> |
| Junior College | <input type="checkbox"/> | On-the-job Training | <input type="checkbox"/> |
| College | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

SUBJECTS AND COURSES

Record an "X" to indicate subjects and courses that develop worker skills.

- | | | | |
|-------------------------------------|--------------------------|---------------------------------|--------------------------|
| Trade related subjects and courses: | | Blueprint Reading | <input type="checkbox"/> |
| Applied Mathematics | <input type="checkbox"/> | Estimating | <input type="checkbox"/> |
| Basic Chemistry | <input type="checkbox"/> | Laboratory Procedures | <input type="checkbox"/> |
| Care and Use of Tools | <input type="checkbox"/> | Test Procedures | <input type="checkbox"/> |

WHAT THE WORKER DOES—Continued

Human Relations	<input type="checkbox"/>	Effects of Solvents	<input type="checkbox"/>
Principles of Supervision	<input type="checkbox"/>	Resistance to Marring	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Related Properties	<input type="checkbox"/>
Plastics:		Properties of Thermosets:	
Introduction to Plastics:		Properties of Basic Thermosetting	
Survey of Field of Plastics	<input type="checkbox"/>	Materials	<input type="checkbox"/>
Trade Terminology	<input type="checkbox"/>	Aspects of Fillers on Properties	<input type="checkbox"/>
Origins, Development, and Future of		Effects of Cure	<input type="checkbox"/>
Plastics	<input type="checkbox"/>	Plasticity of Molding Procedures	<input type="checkbox"/>
Principles of Polymerization	<input type="checkbox"/>	Strength-Weight Ratios	<input type="checkbox"/>
General Principles of:		Dies and Molds:	
Polymerization	<input type="checkbox"/>	Design of Molds	<input type="checkbox"/>
Polycondensation	<input type="checkbox"/>	Types of Materials for Molds	<input type="checkbox"/>
Polarity	<input type="checkbox"/>	Types of Molds	<input type="checkbox"/>
Colloidal Properties	<input type="checkbox"/>	Production of Molds	<input type="checkbox"/>
Crystallinity	<input type="checkbox"/>	Hobbing	<input type="checkbox"/>
Determination of:		Electric deposition or Electro-forming	
Molecular weights	<input type="checkbox"/>	of Molds	<input type="checkbox"/>
Viscosity	<input type="checkbox"/>	Shop Production Procedures:	
Applied Chemistry of Plastics Materials:		Requirements of Shop Setup	<input type="checkbox"/>
Chemical Structure of Synthetic Resins	<input type="checkbox"/>	Hydraulic Supply Systems	<input type="checkbox"/>
Nature of Plastics	<input type="checkbox"/>	Hydraulic Presses	<input type="checkbox"/>
Linear and Cross-Linked Plastics	<input type="checkbox"/>	Injection and Extrusion Presses	<input type="checkbox"/>
Sources of Basic Chemicals:		Preparation of Materials	<input type="checkbox"/>
Coal	<input type="checkbox"/>	Injection Molding	<input type="checkbox"/>
Proteins	<input type="checkbox"/>	Compression and Vacuum Molding	<input type="checkbox"/>
Petroleum and Petroleum Gases	<input type="checkbox"/>	Blow Molding	<input type="checkbox"/>
Chemurgy	<input type="checkbox"/>	Sheet Lamination	<input type="checkbox"/>
Natural Resins	<input type="checkbox"/>	Cast Resins	<input type="checkbox"/>
Synthetic Elastomers:		Shop Inspection Practices	<input type="checkbox"/>
Synthetic Rubbers	<input type="checkbox"/>	Extrusion Molding Practices	<input type="checkbox"/>
Isoprene	<input type="checkbox"/>	Extrusion Molding of:	
Styrene Monomers	<input type="checkbox"/>	Tubes	<input type="checkbox"/>
Vinyl Acetylene	<input type="checkbox"/>	Sheet	<input type="checkbox"/>
Vulcanization	<input type="checkbox"/>	Profile Shapes	<input type="checkbox"/>
Comparison of Properties of:		Machine and Fixture Setup	<input type="checkbox"/>
Butadiene Self Polymers	<input type="checkbox"/>	Machine Types	<input type="checkbox"/>
Butyl Rubber	<input type="checkbox"/>	Screw and Cylinder Construction	<input type="checkbox"/>
Thioplasts	<input type="checkbox"/>	Heater Elements	<input type="checkbox"/>
Manufacture and Processing of Plastics of:		Cooling Procedures	<input type="checkbox"/>
Phenol-formaldehyde Molding Powders	<input type="checkbox"/>	Care and Maintenance of:	
Urea-formaldehyde Molding Powders	<input type="checkbox"/>	Machines	<input type="checkbox"/>
Polystyrene and Other Polymers	<input type="checkbox"/>	Tools	<input type="checkbox"/>
Cellulose Acetate	<input type="checkbox"/>	Work Areas	<input type="checkbox"/>
Cellulose Nitrate	<input type="checkbox"/>	Compression Molding Practices:	
Process of Thermal Polymerization	<input type="checkbox"/>	Mold Setup	<input type="checkbox"/>
Emulsion Condensation	<input type="checkbox"/>	Ejector mechanisms	<input type="checkbox"/>
Properties of Thermoplasts:		Molding of Parts	<input type="checkbox"/>
Physical Properties	<input type="checkbox"/>	Transfer molding	<input type="checkbox"/>
Flow Properties	<input type="checkbox"/>	Machine Types	<input type="checkbox"/>
Effect of Temperature on Physical		Heating Media	<input type="checkbox"/>
Properties	<input type="checkbox"/>	Cooling Jigs	<input type="checkbox"/>
Fatigue Resistance	<input type="checkbox"/>	Care and Maintenance of:	
Creep and Creep Recovery	<input type="checkbox"/>	Tools	<input type="checkbox"/>
		Materials	<input type="checkbox"/>

WHAT THE WORKER DOES—Continued

Thermo-forming Practices:

- Machines and Mold Forms
- Materials and Methods of Forming
- Vacuum Pumps
- Cutting and Edging
- Clamp Fixtures
- Preheater and Cooling Procedures
- Decorating Methods
- Scrap Grinding and Maintenance

Injection Molding:

- Injection Molding of Thermoplastic
 - Materials
- Machines, Molds, and Fixtures
- Heating and Cooling Methods
- Scrap Grinding
- Preheating
- Maintenance

Blow Molding Process:

- Materials
- Press Types
- Molds and Dies
- Preheater Equipment
- Equipment for:
 - Tube Processing
 - Sheet Blowing
 - Bottle Shape Forming
- Machines, Die Care, and Maintenance

Reinforced Plastics:

- Lay-up Work
- Pre-form Molding
- Filament Winding
- Glass Reinforcement

- Resins and Ancilla Materials
- Design and Construction of Tooling
- Pre-impregnation
- Heat Treatment
- Catalysts
- Fillers
- Core Materials

Foam Plastics Procedures:

- Syntactic Type Foams
- Open and Closed Cell Forms
- Materials
- Densities
- Mixing Procedures
- Tooling

Honeycomb Structures:

- Paper Honeycomb
- Fabric Honeycomb
- Metal Honeycomb
- Type of Structures and Uses
- Adhesive Bonding
- Welding
- Edge Sealing

Test Procedures:

- Testing Principal Plastics
- Selection of Plastic Materials
- Methods of Forming
- Mechanical and Structural Properties in Plastics
- Survey of Modern Plastics
- Adhesives Technology
- Plastics Technology
- Other (specify)

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, or work aids used.

Machines and equipment:

- Abrasive finishing and deflashing machines
- Bead screening machines
- Blender loading machines
- Blenders
- Blenders-homogenizers
- Blow molding machinery
- Blow molding deflashing machines
- Calenders
- Capping machines
- Casting machinery:
 - Film casting
 - Resin casting
 - Slush casting
 - Vacuum casting
- Coating machinery and equipment:
 - Curtain coating machinery

- Dip coating machinery
- Electrostatic coating equipment
- Extrusion coating machinery
- Fluidized bed coating machinery
- Roller coating
- Coiling machines
- Compounding and mixing machinery:
 - Dry blenders
 - Intensive mixers
 - Liquid mixers
 - Roll mills
 - Tumbler mixers
- Compression molding machinery
- Continuous dipping line equipment
- Conveyors:
 - Pneumatic conveyors
 - Vacuum conveyors
 - Mechanical conveyors

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- Cooling equipment
- Cooling and heating equipment
- Cut-off machines
- Decorating and marking machinery:
 - Embossing equipment
 - Engraving machines
 - Flock coating equipment
 - Hot stamping machines
- Labeling machines
- Paint spraying systems
- Printing systems
- Silk screen equipment
- Vacuum metalizing equipment
- Degating equipment
- Dicers
- Die cutting presses
- Dispensing machines
- Drying and preheating equipment:
 - Dehumidifiers
 - Hopper drier preheaters
 - Infra-red heating units
 - Mold heating equipment
 - Preheaters
 - Vacuum driers
- Extruder molding machinery
- Fiber-glass roving cutters
- Foam fabricating equipment
- Foam molding machinery
- Foam sheeting machines
- Granulators
- Grinders:
 - Ball Mills
 - Pulverizers
 - Scrap grinders
- Heating and cooling equipment:
 - Chilling equipment
 - Cooling towers
 - Band heaters
 - Rod and cartridge heaters
 - Heat exchange systems
 - Hot water and steam boilers
- Injection molding machinery:
 - Combination plunger and screw system
 - Plunger systems
 - Screw systems
- Irradiation equipment
- Laboratory processing equipment
- Laminating and impregnating machinery:
 - Impregnating equipment
 - Thermoplastics laminating equipment
 - Thermoset laminating equipment
- Material Handling Systems Machinery:
 - Bulk materials handling systems
 - Automatic weighing equipment
 - Batch weighing equipment

- Dry materials proportioners
- Mechanical hopper loaders
- Pneumatic hopper loaders
- Metering, proportioning, and dispensing machines
- Particle reduction and sizing equipment:
 - Ball mills
 - Knife cutting
 - Pelletizers
 - Shredders
- Perforating machinery
- Preforming machinery:
 - Preforming presses
 - Vacuum forming equipment
- Presses:
 - Drill presses
 - Hot stamp foils
 - Hot stamp presses
 - Hydraulic presses
- Rotational casting equipment
- Sealing machines and equipment:
 - Die sealing
 - Electronic sealing
 - Electrical high frequency sealing
 - Thermal sealing
 - Ultrasonic sealing
- Slitting machines
- Static eliminating equipment
- Take-off equipment:
 - Cooling bath equipment
 - Cut-off machines
 - Pull-off equipment
 - Saws
 - Vacuum sizers
- Take-off systems:
 - Blown film take-off system
 - Calendering take-off system
 - Extrusion and laminating take-off system
 - Flat film and sheeting take-off system
 - Pipes and profiles take-off system
 - Wire coating take-off system
- Thermaforming systems:
 - Pressure forming systems
 - Vacuum forming systems
- Thermaset molding machines and equipment:
 - Autoclaves
 - Compression presses
 - Filament winding machines and equipment
 - Glass fiber choppers
 - Potting and encapsulating equipment
 - Transfer presses
- Vibrators
- Vulcanizing equipment

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- Welding equipment:**
 Hot gas welders
 Microwave cohesion welders
 Electronic welders
 Spin welders
 Ultrasonic welders

- Winding machines:**
 Winders
 Rewinders
 Other (specify)

- Miscellaneous Machines and Equipment:**
 Buffing and sanding machines
Scales:
 Balance scales
 Platform scales
Grinders
Lathes:
 Engine lathes
 Turret lathes
Hoists
Pumps
 Vacuum pumps
Sewing machine
Bandsaw
Milling machines
 Electrical discharge milling machine
Routers
Shapers
Tapping machine
Tracer mills
Shears
Fiberglass dowel machine
 Other (specify)

- Tools:**
Handtools:
 Files
 Hacksaws
 Hammers
 Hand spreaders
 Knives
 Mallets
 Scissors
 Scrapers
 Screwdrivers
 Snips
 Wrenches
 Other (specify)

- Power handtools:**
 Buffers
 Drills
 Grinders
 Polishers

- Riveting gun
 Scissors
 Screwdrivers
 Spray gun
 Other (specify)

- Work Aids**
Control devices:
 Control valves
 Counters
 Diameter controls
 Eccentricity controls
 Flow meters
 Indicators
 Length controls
 Level controls
 Photoelectric cells
 Pressure meters
 Pyrometers
 Recorders
 Sequencing controls
 Tachometers
 Temperature controls
 Thermometers
 Thickness controls
 Timers
 Transmitting devices
 Viscosity indicators
 Weight controls
 X-ray devices

- Measuring Instruments:**
 Calipers
 Dial indicators
 Feeler gages
 Micrometers
 Rules

- Testing instruments:**
 Acid bath tester
 Aging ovens
 Balances
 Brabender testers
 Burst testers
 Color testers
 Compressions tester
 Dielectric tester
 Electrostatic charge tester
 Hardness tester
 Heat guns
 Holiday detectors
 Humidity control testers
 Impact testers
 Infrared thermometers
 Mass flow meters
 Moisture meters
 Spectrophotometers

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- | | | | |
|----------------------------|--------------------------|------------------------------|--------------------------|
| Tension testers | <input type="checkbox"/> | Product specifications | <input type="checkbox"/> |
| Thickness gages | <input type="checkbox"/> | Standard charts | <input type="checkbox"/> |
| Torsion meters | <input type="checkbox"/> | Formulas | <input type="checkbox"/> |
| Vacuum gages | <input type="checkbox"/> | Manuals | <input type="checkbox"/> |
| Viscosimeters | <input type="checkbox"/> | Inspection reports | <input type="checkbox"/> |
| Weathering testers | <input type="checkbox"/> | Laboratory reports | <input type="checkbox"/> |
| Ultrasonic testers | <input type="checkbox"/> | Fixtures | <input type="checkbox"/> |
| Eddy current testers | <input type="checkbox"/> | Jigs | <input type="checkbox"/> |
| X-ray testers | <input type="checkbox"/> | Guides | <input type="checkbox"/> |
| Densitometers | <input type="checkbox"/> | Stops | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Clamps | <input type="checkbox"/> |
| Blueprints | <input type="checkbox"/> | Hoists | <input type="checkbox"/> |
| Job orders | <input type="checkbox"/> | Models | <input type="checkbox"/> |
| Material lists | <input type="checkbox"/> | Prototype products | <input type="checkbox"/> |
| Production orders | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

PRODUCTS

Record an "X" to indicate products processed or manufactured.

- | | | | |
|---|--------------------------|-------------------------------------|--------------------------|
| Advertising products | <input type="checkbox"/> | Bellows | <input type="checkbox"/> |
| Aerosol components | <input type="checkbox"/> | Belting | <input type="checkbox"/> |
| Air conditioner components | <input type="checkbox"/> | Belts | <input type="checkbox"/> |
| Aircraft components | <input type="checkbox"/> | Benches | <input type="checkbox"/> |
| Amusement park cars | <input type="checkbox"/> | Bezel assemblies | <input type="checkbox"/> |
| Ammunition cases and containers | <input type="checkbox"/> | Bezels | <input type="checkbox"/> |
| Angles | <input type="checkbox"/> | Bicycle parts and accessories | <input type="checkbox"/> |
| Antenna components | <input type="checkbox"/> | Billfold items | <input type="checkbox"/> |
| Appliance components | <input type="checkbox"/> | Billiard supplies | <input type="checkbox"/> |
| Applicators | <input type="checkbox"/> | Binders | <input type="checkbox"/> |
| Archery products | <input type="checkbox"/> | Bindings | <input type="checkbox"/> |
| Ash trays | <input type="checkbox"/> | Bins | <input type="checkbox"/> |
| Autoclave and Hydroclave components | <input type="checkbox"/> | Blades for products | <input type="checkbox"/> |
| Automobile components | <input type="checkbox"/> | Blood test kits | <input type="checkbox"/> |
| Automotive components | <input type="checkbox"/> | Blower components | <input type="checkbox"/> |
| Awnings (reinforced fiber glass) | <input type="checkbox"/> | Boats | <input type="checkbox"/> |
| Badges | <input type="checkbox"/> | Bobbins | <input type="checkbox"/> |
| Bag liners | <input type="checkbox"/> | Bolts | <input type="checkbox"/> |
| Bags | <input type="checkbox"/> | Bottle: | |
| Balls and ball components | <input type="checkbox"/> | Cap bands | <input type="checkbox"/> |
| Bars | <input type="checkbox"/> | Caps | <input type="checkbox"/> |
| Barrels | <input type="checkbox"/> | Carriers | <input type="checkbox"/> |
| Bases for products | <input type="checkbox"/> | Closures | <input type="checkbox"/> |
| Basins | <input type="checkbox"/> | Disks | <input type="checkbox"/> |
| Baskets | <input type="checkbox"/> | Holders | <input type="checkbox"/> |
| Bassinets | <input type="checkbox"/> | Bottles for products | <input type="checkbox"/> |
| Bath fixtures | <input type="checkbox"/> | Boudoir accessories | <input type="checkbox"/> |
| Bathroom accessories and fixtures | <input type="checkbox"/> | Bowling supplies | <input type="checkbox"/> |
| Bats | <input type="checkbox"/> | Bowls | <input type="checkbox"/> |
| Battery parts | <input type="checkbox"/> | Boxes | <input type="checkbox"/> |
| Beads | <input type="checkbox"/> | Brackets | <input type="checkbox"/> |
| Beakers | <input type="checkbox"/> | Braziers | <input type="checkbox"/> |
| Bearings | <input type="checkbox"/> | Brief cases | <input type="checkbox"/> |
| Beer carriers | <input type="checkbox"/> | Brush components | <input type="checkbox"/> |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

Brushes	<input type="checkbox"/>	Coatings	<input type="checkbox"/>
Buckets	<input type="checkbox"/>	Coffee makers	<input type="checkbox"/>
Buckles	<input type="checkbox"/>	Coffee pot parts	<input type="checkbox"/>
Buffers	<input type="checkbox"/>	Coil forms	<input type="checkbox"/>
Building components	<input type="checkbox"/>	Coils	<input type="checkbox"/>
Bumpers for products	<input type="checkbox"/>	Colanders	<input type="checkbox"/>
Buoys	<input type="checkbox"/>	Combs	<input type="checkbox"/>
Bushings	<input type="checkbox"/>	Commodes	<input type="checkbox"/>
Business machine components	<input type="checkbox"/>	Communication components	<input type="checkbox"/>
Button blanks	<input type="checkbox"/>	Commutators	<input type="checkbox"/>
Buttons	<input type="checkbox"/>	Compacts	<input type="checkbox"/>
Cabinet components	<input type="checkbox"/>	Computer components	<input type="checkbox"/>
Cabinets	<input type="checkbox"/>	Conduit	<input type="checkbox"/>
Cable covering	<input type="checkbox"/>	Cones	<input type="checkbox"/>
Cages	<input type="checkbox"/>	Connector assemblies	<input type="checkbox"/>
Cake covers	<input type="checkbox"/>	Connectors	<input type="checkbox"/>
Cameos	<input type="checkbox"/>	Consoles	<input type="checkbox"/>
Camera equipment and components	<input type="checkbox"/>	Containers for products	<input type="checkbox"/>
Cams	<input type="checkbox"/>	Control panels	<input type="checkbox"/>
Candle holders	<input type="checkbox"/>	Conveyor components	<input type="checkbox"/>
Candy sticks	<input type="checkbox"/>	Cord	<input type="checkbox"/>
Cannisters	<input type="checkbox"/>	Core assemblies	<input type="checkbox"/>
Canoes	<input type="checkbox"/>	Cores	<input type="checkbox"/>
Canopies	<input type="checkbox"/>	Corner blocks	<input type="checkbox"/>
Cans	<input type="checkbox"/>	Corners	<input type="checkbox"/>
Canteen tops	<input type="checkbox"/>	Counter tops	<input type="checkbox"/>
Capacitors	<input type="checkbox"/>	Couplings	<input type="checkbox"/>
Caps for products	<input type="checkbox"/>	Covers for products	<input type="checkbox"/>
Carafes	<input type="checkbox"/>	Crates	<input type="checkbox"/>
Cards	<input type="checkbox"/>	Creamers	<input type="checkbox"/>
Cargo containers	<input type="checkbox"/>	Crispers	<input type="checkbox"/>
Carpeting	<input type="checkbox"/>	Crystal ware	<input type="checkbox"/>
Carriers	<input type="checkbox"/>	Cup holders	<input type="checkbox"/>
Cartridges	<input type="checkbox"/>	Cups	<input type="checkbox"/>
Cases for products	<input type="checkbox"/>	Curlers	<input type="checkbox"/>
Cash drawers	<input type="checkbox"/>	Curtains	<input type="checkbox"/>
Casket vaults	<input type="checkbox"/>	Cushioning materials	<input type="checkbox"/>
Casters	<input type="checkbox"/>	Cushions	<input type="checkbox"/>
Catheters	<input type="checkbox"/>	Cutlery	<input type="checkbox"/>
Cellular foam products	<input type="checkbox"/>	Cylinders	<input type="checkbox"/>
Chairs and chair components	<input type="checkbox"/>	Data cells	<input type="checkbox"/>
Channels	<input type="checkbox"/>	Data processing equipment components	<input type="checkbox"/>
Chess sets	<input type="checkbox"/>	Decanters	<input type="checkbox"/>
Christmas decorations and displays	<input type="checkbox"/>	Decorations	<input type="checkbox"/>
Cigarette holders	<input type="checkbox"/>	Dental components and equipment	<input type="checkbox"/>
Circuit boards	<input type="checkbox"/>	Deodorizers	<input type="checkbox"/>
Circuit breakers	<input type="checkbox"/>	Desk accessories and sets	<input type="checkbox"/>
Circuit components	<input type="checkbox"/>	Desks	<input type="checkbox"/>
Cleaning aids and compounds	<input type="checkbox"/>	Developing trays	<input type="checkbox"/>
Cleats	<input type="checkbox"/>	Dials	<input type="checkbox"/>
Clips	<input type="checkbox"/>	Diaphragms	<input type="checkbox"/>
Clock components	<input type="checkbox"/>	Dictation equipment	<input type="checkbox"/>
Closures for products	<input type="checkbox"/>	Diffusers	<input type="checkbox"/>
Clothespins	<input type="checkbox"/>	Dinnerware	<input type="checkbox"/>
Coasters	<input type="checkbox"/>	Dishes	<input type="checkbox"/>

PRODUCTS—Continued

Dishwasher components	<input type="checkbox"/>	Fixtures	<input type="checkbox"/>
Dispensers	<input type="checkbox"/>	Flashing	<input type="checkbox"/>
Display	<input type="checkbox"/>	Flashlights and components	<input type="checkbox"/>
Disposable items	<input type="checkbox"/>	Floats	<input type="checkbox"/>
Dividers	<input type="checkbox"/>	Float valves	<input type="checkbox"/>
Dollies	<input type="checkbox"/>	Flooring	<input type="checkbox"/>
Domes	<input type="checkbox"/>	Flower pots	<input type="checkbox"/>
Door assemblies	<input type="checkbox"/>	Flowers	<input type="checkbox"/>
Doors	<input type="checkbox"/>	Flumes	<input type="checkbox"/>
Dowel pins	<input type="checkbox"/>	Flyswatters	<input type="checkbox"/>
Downspouts and gutters	<input type="checkbox"/>	Foam products	<input type="checkbox"/>
Drafting instruments	<input type="checkbox"/>	Foils	<input type="checkbox"/>
Drainboards	<input type="checkbox"/>	Food processing equipment	<input type="checkbox"/>
Drapery accessories	<input type="checkbox"/>	Food service equipment	<input type="checkbox"/>
Drapery hardware	<input type="checkbox"/>	Footwear	<input type="checkbox"/>
Drawers	<input type="checkbox"/>	Forks	<input type="checkbox"/>
Drinkware	<input type="checkbox"/>	Forms	<input type="checkbox"/>
Drop cloths	<input type="checkbox"/>	Frames	<input type="checkbox"/>
Dropper assemblies	<input type="checkbox"/>	Freezer components	<input type="checkbox"/>
Droppers	<input type="checkbox"/>	Fuel cells	<input type="checkbox"/>
Drums	<input type="checkbox"/>	Funnels	<input type="checkbox"/>
Dryers and components	<input type="checkbox"/>	Furniture	<input type="checkbox"/>
Ducts	<input type="checkbox"/>	Furniture components	<input type="checkbox"/>
Edgings	<input type="checkbox"/>	Fuse components	<input type="checkbox"/>
Egg cartons	<input type="checkbox"/>	Games and game components	<input type="checkbox"/>
Egg flats	<input type="checkbox"/>	Garden accessories and sets	<input type="checkbox"/>
Electrical components	<input type="checkbox"/>	Gardening equipment	<input type="checkbox"/>
Electronic components	<input type="checkbox"/>	Gaskets	<input type="checkbox"/>
Emblems	<input type="checkbox"/>	Gates	<input type="checkbox"/>
Enclosures	<input type="checkbox"/>	Gears and gear components	<input type="checkbox"/>
Engravings	<input type="checkbox"/>	Gift items and wares	<input type="checkbox"/>
Entertainment items and parts	<input type="checkbox"/>	Glasses	<input type="checkbox"/>
Escutcheons	<input type="checkbox"/>	Glides	<input type="checkbox"/>
Fabrics	<input type="checkbox"/>	Globes and globe components	<input type="checkbox"/>
Fairings	<input type="checkbox"/>	Golfing accessories	<input type="checkbox"/>
Fans	<input type="checkbox"/>	Gratings	<input type="checkbox"/>
Farm equipment and components	<input type="checkbox"/>	Grids	<input type="checkbox"/>
Facias	<input type="checkbox"/>	Grilles	<input type="checkbox"/>
Fasteners	<input type="checkbox"/>	Grips	<input type="checkbox"/>
Feeders	<input type="checkbox"/>	Grommets	<input type="checkbox"/>
Fencing	<input type="checkbox"/>	Grooming aids	<input type="checkbox"/>
Fenders	<input type="checkbox"/>	Guards	<input type="checkbox"/>
Ferrules and bases	<input type="checkbox"/>	Guides	<input type="checkbox"/>
Fiberglass products	<input type="checkbox"/>	Gun components	<input type="checkbox"/>
Figures	<input type="checkbox"/>	Hair accessories	<input type="checkbox"/>
Filaments	<input type="checkbox"/>	Hammers	<input type="checkbox"/>
Film	<input type="checkbox"/>	Hampers	<input type="checkbox"/>
Filter components	<input type="checkbox"/>	Handles	<input type="checkbox"/>
Filters	<input type="checkbox"/>	Hardware	<input type="checkbox"/>
Finials	<input type="checkbox"/>	Harnesses	<input type="checkbox"/>
Fire-extinguishers	<input type="checkbox"/>	Hats	<input type="checkbox"/>
Fishing lures	<input type="checkbox"/>	Headboards	<input type="checkbox"/>
Fishing reels	<input type="checkbox"/>	Headers	<input type="checkbox"/>
Filaments	<input type="checkbox"/>	Hearing aid components	<input type="checkbox"/>
Fittings	<input type="checkbox"/>	Helmets	<input type="checkbox"/>

PRODUCTS—Continued

Hobby horses	<input type="checkbox"/>	Measurers	<input type="checkbox"/>
Hobby kits	<input type="checkbox"/>	Meat trays	<input type="checkbox"/>
Holders	<input type="checkbox"/>	Medallions	<input type="checkbox"/>
Honeycomb structures	<input type="checkbox"/>	Meters	<input type="checkbox"/>
Hoods	<input type="checkbox"/>	Microphonic components	<input type="checkbox"/>
Hooks	<input type="checkbox"/>	Missile components	<input type="checkbox"/>
Hoppers	<input type="checkbox"/>	Mixers	<input type="checkbox"/>
Hose	<input type="checkbox"/>	Models	<input type="checkbox"/>
Hospital items and supplies	<input type="checkbox"/>	Moldings	<input type="checkbox"/>
Housewares	<input type="checkbox"/>	Motor components	<input type="checkbox"/>
Housings	<input type="checkbox"/>	Name plates	<input type="checkbox"/>
Hub caps	<input type="checkbox"/>	Napkin holders	<input type="checkbox"/>
Humidifier components	<input type="checkbox"/>	Nasal aspirators	<input type="checkbox"/>
Ice buckets	<input type="checkbox"/>	Netting	<input type="checkbox"/>
Ice chests	<input type="checkbox"/>	Notions	<input type="checkbox"/>
Identification products	<input type="checkbox"/>	Novelties	<input type="checkbox"/>
Impellers	<input type="checkbox"/>	Nozzles	<input type="checkbox"/>
Indicators	<input type="checkbox"/>	Nuts	<input type="checkbox"/>
Infant accessories and items	<input type="checkbox"/>	Office equipment components	<input type="checkbox"/>
Infants' wear	<input type="checkbox"/>	Optical product components	<input type="checkbox"/>
Inhalers	<input type="checkbox"/>	Ordnance devices and items	<input type="checkbox"/>
Inserts	<input type="checkbox"/>	Organ components	<input type="checkbox"/>
Instrument components	<input type="checkbox"/>	Ornaments	<input type="checkbox"/>
Instruments	<input type="checkbox"/>	Outlets	<input type="checkbox"/>
Insulation	<input type="checkbox"/>	Packaging	<input type="checkbox"/>
Insulators	<input type="checkbox"/>	Packaging components	<input type="checkbox"/>
Interrupters	<input type="checkbox"/>	Packaging compounds	<input type="checkbox"/>
Jars	<input type="checkbox"/>	Packaging materials	<input type="checkbox"/>
Jewelery and accessories	<input type="checkbox"/>	Packing	<input type="checkbox"/>
Joints	<input type="checkbox"/>	Padding	<input type="checkbox"/>
Jugs	<input type="checkbox"/>	Pads	<input type="checkbox"/>
Keys	<input type="checkbox"/>	Pails and liners	<input type="checkbox"/>
Knives	<input type="checkbox"/>	Paneling	<input type="checkbox"/>
Knobs	<input type="checkbox"/>	Panels	<input type="checkbox"/>
Labels	<input type="checkbox"/>	Pans	<input type="checkbox"/>
Laminates	<input type="checkbox"/>	Pantryware	<input type="checkbox"/>
Lamp assemblies	<input type="checkbox"/>	Partitions	<input type="checkbox"/>
Lamp components	<input type="checkbox"/>	Patioware	<input type="checkbox"/>
Lamps	<input type="checkbox"/>	Pen barrels and components	<input type="checkbox"/>
Lanterns	<input type="checkbox"/>	Pen holders	<input type="checkbox"/>
Lattices	<input type="checkbox"/>	Pencil parts	<input type="checkbox"/>
Legs	<input type="checkbox"/>	Pet feeders	<input type="checkbox"/>
Lenses	<input type="checkbox"/>	Phonograph records	<input type="checkbox"/>
Letter openers	<input type="checkbox"/>	Photocopier components	<input type="checkbox"/>
Lids	<input type="checkbox"/>	Photo equipment components	<input type="checkbox"/>
Lighting accessories and components	<input type="checkbox"/>	Picnic accessories and items	<input type="checkbox"/>
Liners	<input type="checkbox"/>	Pillows	<input type="checkbox"/>
Loudspeakers	<input type="checkbox"/>	Pinions	<input type="checkbox"/>
Lubricants	<input type="checkbox"/>	Pins	<input type="checkbox"/>
Luggage	<input type="checkbox"/>	Pipe	<input type="checkbox"/>
Mallets	<input type="checkbox"/>	Pipe fittings	<input type="checkbox"/>
Manikins	<input type="checkbox"/>	Pipes	<input type="checkbox"/>
Markers	<input type="checkbox"/>	Pipettes	<input type="checkbox"/>
Mats	<input type="checkbox"/>	Piping components	<input type="checkbox"/>
Mattresses	<input type="checkbox"/>	Pitchers	<input type="checkbox"/>

PRODUCTS—Continued

Planters	<input type="checkbox"/>	Screws	<input type="checkbox"/>
Plaques	<input type="checkbox"/>	Scrubbers	<input type="checkbox"/>
Plates	<input type="checkbox"/>	Sculpture	<input type="checkbox"/>
Playground equipment	<input type="checkbox"/>	Seals	<input type="checkbox"/>
Plugs	<input type="checkbox"/>	Seat parts	<input type="checkbox"/>
Plumbing components and parts	<input type="checkbox"/>	Seats	<input type="checkbox"/>
Plumbing fixtures and fittings	<input type="checkbox"/>	Separators	<input type="checkbox"/>
Pointers	<input type="checkbox"/>	Sewer and drain fittings	<input type="checkbox"/>
Poker chips and racks	<input type="checkbox"/>	Sewer mains	<input type="checkbox"/>
Poles	<input type="checkbox"/>	Sewer pipe and fittings	<input type="checkbox"/>
Pool balls	<input type="checkbox"/>	Sewing machine components	<input type="checkbox"/>
Popsicle molds	<input type="checkbox"/>	Shades	<input type="checkbox"/>
Posts	<input type="checkbox"/>	Shafts	<input type="checkbox"/>
Pots	<input type="checkbox"/>	Shakers	<input type="checkbox"/>
Precision parts	<input type="checkbox"/>	Shapes	<input type="checkbox"/>
Profiled parts	<input type="checkbox"/>	Sheets	<input type="checkbox"/>
Profiles	<input type="checkbox"/>	Sheeting	<input type="checkbox"/>
Projector parts	<input type="checkbox"/>	Shelves	<input type="checkbox"/>
Projectors	<input type="checkbox"/>	Shelving	<input type="checkbox"/>
Protectors	<input type="checkbox"/>	Shields	<input type="checkbox"/>
Protractors	<input type="checkbox"/>	Shoe findings	<input type="checkbox"/>
Pulleys	<input type="checkbox"/>	Shoe products	<input type="checkbox"/>
Pulls	<input type="checkbox"/>	Shower doors	<input type="checkbox"/>
Pump components	<input type="checkbox"/>	Shower accessories	<input type="checkbox"/>
Pumps	<input type="checkbox"/>	Shrouds	<input type="checkbox"/>
Push buttons	<input type="checkbox"/>	Shutters	<input type="checkbox"/>
Puzzles	<input type="checkbox"/>	Siding	<input type="checkbox"/>
Racks	<input type="checkbox"/>	Signs	<input type="checkbox"/>
Radar screens	<input type="checkbox"/>	Sinks and accessories	<input type="checkbox"/>
Radio components	<input type="checkbox"/>	Skegs	<input type="checkbox"/>
Radomes	<input type="checkbox"/>	Skylights	<input type="checkbox"/>
Railings	<input type="checkbox"/>	Sleeves	<input type="checkbox"/>
Razor components	<input type="checkbox"/>	Sleeving	<input type="checkbox"/>
Receptacles	<input type="checkbox"/>	Sockets	<input type="checkbox"/>
Reducers	<input type="checkbox"/>	Sonar domes	<input type="checkbox"/>
Reels	<input type="checkbox"/>	Sonar gear components	<input type="checkbox"/>
Refrigeration components	<input type="checkbox"/>	Spacers	<input type="checkbox"/>
Refrigerator accessories	<input type="checkbox"/>	Spatulas	<input type="checkbox"/>
Relay components	<input type="checkbox"/>	Spigots	<input type="checkbox"/>
Relays	<input type="checkbox"/>	Splines	<input type="checkbox"/>
Retainers	<input type="checkbox"/>	Spools	<input type="checkbox"/>
Ribbons	<input type="checkbox"/>	Sponges	<input type="checkbox"/>
Rings	<input type="checkbox"/>	Spouts	<input type="checkbox"/>
Rivets	<input type="checkbox"/>	Sporting goods	<input type="checkbox"/>
Rods	<input type="checkbox"/>	Spouts	<input type="checkbox"/>
Rollers	<input type="checkbox"/>	Springs	<input type="checkbox"/>
Rotors	<input type="checkbox"/>	Sprinklers and components	<input type="checkbox"/>
Rulers	<input type="checkbox"/>	Stacks	<input type="checkbox"/>
Rules	<input type="checkbox"/>	Stair components	<input type="checkbox"/>
Runners	<input type="checkbox"/>	Stampings	<input type="checkbox"/>
Scale parts	<input type="checkbox"/>	Stands	<input type="checkbox"/>
Scales	<input type="checkbox"/>	Statuary	<input type="checkbox"/>
Scoops	<input type="checkbox"/>	Stereo components	<input type="checkbox"/>
Scrapers	<input type="checkbox"/>	Stirrers	<input type="checkbox"/>
Screens	<input type="checkbox"/>		

PRODUCTS—Continued

Stones	<input type="checkbox"/>	Towers	<input type="checkbox"/>
Stools	<input type="checkbox"/>	Toy kits	<input type="checkbox"/>
Stopcocks	<input type="checkbox"/>	Toy parts	<input type="checkbox"/>
Stoppers	<input type="checkbox"/>	Toys	<input type="checkbox"/>
Strainers	<input type="checkbox"/>	Track	<input type="checkbox"/>
Strapping	<input type="checkbox"/>	Trailers	<input type="checkbox"/>
Straps	<input type="checkbox"/>	Trains	<input type="checkbox"/>
Straws	<input type="checkbox"/>	Transformer parts	<input type="checkbox"/>
Strips	<input type="checkbox"/>	Traps	<input type="checkbox"/>
Structural components	<input type="checkbox"/>	Trash cans and containers	<input type="checkbox"/>
Suitcases	<input type="checkbox"/>	Travel accessories	<input type="checkbox"/>
Sunglasses	<input type="checkbox"/>	Trays	<input type="checkbox"/>
Surfboards	<input type="checkbox"/>	Trim	<input type="checkbox"/>
Switch components	<input type="checkbox"/>	Trimming	<input type="checkbox"/>
Switches	<input type="checkbox"/>	Trophies and components	<input type="checkbox"/>
Swizzle sticks	<input type="checkbox"/>	Tube components	<input type="checkbox"/>
Syringes	<input type="checkbox"/>	Tubes	<input type="checkbox"/>
Table accessories	<input type="checkbox"/>	Tubing	<input type="checkbox"/>
Tables	<input type="checkbox"/>	Tubs	<input type="checkbox"/>
Table ware	<input type="checkbox"/>	Tumblers	<input type="checkbox"/>
Tabs	<input type="checkbox"/>	Tuner parts	<input type="checkbox"/>
Tags	<input type="checkbox"/>	Typewriter parts	<input type="checkbox"/>
Tanks	<input type="checkbox"/>	Urinals	<input type="checkbox"/>
Tape	<input type="checkbox"/>	Utensil parts	<input type="checkbox"/>
Tape components	<input type="checkbox"/>	Vacuum cleaner components	<input type="checkbox"/>
Tape dispensers	<input type="checkbox"/>	Valve assemblies	<input type="checkbox"/>
Tape recorders	<input type="checkbox"/>	Valves	<input type="checkbox"/>
Tapes	<input type="checkbox"/>	Ventilating equipment components	<input type="checkbox"/>
Taps	<input type="checkbox"/>	Vessels	<input type="checkbox"/>
Tees	<input type="checkbox"/>	Vials	<input type="checkbox"/>
Teflon products	<input type="checkbox"/>	Visors	<input type="checkbox"/>
Telephone components	<input type="checkbox"/>	Wallboard	<input type="checkbox"/>
Telephone circuit networks	<input type="checkbox"/>	Wall coverings	<input type="checkbox"/>
Television components	<input type="checkbox"/>	Washers	<input type="checkbox"/>
Templates	<input type="checkbox"/>	Waste baskets	<input type="checkbox"/>
Terminal blocks	<input type="checkbox"/>	Weather stripping	<input type="checkbox"/>
Terminal boards	<input type="checkbox"/>	Webbing	<input type="checkbox"/>
Terminals	<input type="checkbox"/>	Welting	<input type="checkbox"/>
Test tubes	<input type="checkbox"/>	Welts	<input type="checkbox"/>
Textile industry components	<input type="checkbox"/>	Wheels	<input type="checkbox"/>
Thermometers and components	<input type="checkbox"/>	Window components	<input type="checkbox"/>
Thermostat components	<input type="checkbox"/>	Windows	<input type="checkbox"/>
Thread	<input type="checkbox"/>	Windshields	<input type="checkbox"/>
Tile	<input type="checkbox"/>	Wipers	<input type="checkbox"/>
Timing gears	<input type="checkbox"/>	Wire connectors	<input type="checkbox"/>
Tires	<input type="checkbox"/>	Wire ties	<input type="checkbox"/>
Toilet seats	<input type="checkbox"/>	Wiring devices	<input type="checkbox"/>
Tongs	<input type="checkbox"/>	Yarns	<input type="checkbox"/>
Tools and molds	<input type="checkbox"/>	Yo-yos	<input type="checkbox"/>
Tool components	<input type="checkbox"/>	Zippers	<input type="checkbox"/>
Tops	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

Agriculture	<input type="checkbox"/>	Financial	<input type="checkbox"/>
Commercial:		Government Service	<input type="checkbox"/>
Business Service	<input type="checkbox"/>	Industrial	<input type="checkbox"/>
Food and Beverage	<input type="checkbox"/>	Insurance	<input type="checkbox"/>
Lodging Service	<input type="checkbox"/>	Legal	<input type="checkbox"/>
Personal Service	<input type="checkbox"/>	Library	<input type="checkbox"/>
Printing and Publishing	<input type="checkbox"/>	Medical Service	<input type="checkbox"/>
Repair Service	<input type="checkbox"/>	Military	<input type="checkbox"/>
Sales	<input type="checkbox"/>	Nonprofit	<input type="checkbox"/>
Communications	<input type="checkbox"/>	Office Service	<input type="checkbox"/>
Conservation	<input type="checkbox"/>	Recreation	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Social Service	<input type="checkbox"/>
Correctional	<input type="checkbox"/>	Subsurface and Space	<input type="checkbox"/>
Educational	<input type="checkbox"/>	Transportation	<input type="checkbox"/>
Entertainment	<input type="checkbox"/>	Utilities	<input type="checkbox"/>
Exhibition Center	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

FOOD PROCESSING

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs, and coordinates processing activities of a(n):

- Slaughtering and meat packing plant
- Creamery
- Canning and preserving plant
- Grain and feed mill
- Bakery
- Sugar refinery
- Confectionery plant
- Distillery
- Winery
- Brewery
- Soft drink plant
- Organic edible oil refining plant
- Specialty food or food preparation plant
- Other (specify)

Supervises, and coordinates activities of, workers engaged in:

- Slaughtering, dressing or processing, or packing of meats or meat products
- Killing, dressing, processing, or packing poultry or small game
- Breaking and processing of eggs
- Canning and preserving of:
 - Vegetables
 - Fruits
 - Seafoods
 - Vegetable or fruit juices
- Processing:
 - Milk and dairy products
 - Sugar and sugar products
 - Bakery products
 - Candy and confectionery items
 - Grain and feed mill products
 - Vinous wines and spirits
 - Distilled liquors
 - Malt and malt liquors
 - Vegetable oils
 - Animal and marine fats and oils
 - Coffee and coffee extracts
 - Margarine, table oils, and other edible fats and oils
 - Ice
 - Macaroni, spaghetti, and noodles
 - Miscellaneous food preparation
 - Other (specify)

WHAT THE WORKER DOES—Continued

- | | | | |
|---|--------------------------|--|--------------------------|
| Prepares work and worker schedules | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Assigns workers to specific duties | <input type="checkbox"/> | Operates, controls, or tends machines | |
| Interprets processing orders, product | | or equipment to: | |
| specifications, and technical data for | | Crush or mill materials to a size for | |
| workers | <input type="checkbox"/> | further processing | <input type="checkbox"/> |
| Gives workers directions concerning | | Mix or compound materials according to | |
| assigned duties | <input type="checkbox"/> | formula | <input type="checkbox"/> |
| Advises workers on methods and procedures | | Obtain mixture or compound of specified | |
| for solving work problems | <input type="checkbox"/> | texture or consistency | <input type="checkbox"/> |
| Reviews laboratory and testing reports on | | Separate from compound or mixture | |
| materials and products | <input type="checkbox"/> | specified materials | <input type="checkbox"/> |
| Orders changes in processing methods or | | Produce bacteria or other micro-organisms | |
| equipment operation | <input type="checkbox"/> | for use in processing of food | <input type="checkbox"/> |
| Coordinates processing activities with | | Break down organic molecules by | |
| activities of other processing stations | <input type="checkbox"/> | fermentation | <input type="checkbox"/> |
| Requisitions materials and supplies for | | Flavor or preserve food, materials, or | |
| scheduled processing activities | <input type="checkbox"/> | products | <input type="checkbox"/> |
| Trains workers in machine or equipment | | Distill liquid materials for obtaining | |
| operation | <input type="checkbox"/> | specified substances | <input type="checkbox"/> |
| Notifies maintenance personnel of needed | | Saturate materials with other substances | <input type="checkbox"/> |
| machine or equipment repairs | <input type="checkbox"/> | Roast materials or products | <input type="checkbox"/> |
| Enforces worker compliance with established | | Melt materials for further processing | <input type="checkbox"/> |
| procedures, regulations, and safety rules | <input type="checkbox"/> | Dry materials or products | <input type="checkbox"/> |
| Observes workers to insure compliance | | Dehydrate materials or products | <input type="checkbox"/> |
| with work directions | <input type="checkbox"/> | Temper materials | <input type="checkbox"/> |
| Keeps processing and production records | <input type="checkbox"/> | Pasteurize materials | <input type="checkbox"/> |
| Prepares activity and production reports | <input type="checkbox"/> | Extract specified substances from raw | |
| Other (specify) | <input type="checkbox"/> | materials | <input type="checkbox"/> |
| Reads or reviews: | | Cool or condense materials or products | <input type="checkbox"/> |
| Product specifications | <input type="checkbox"/> | Freeze materials or products | <input type="checkbox"/> |
| Production schedules | <input type="checkbox"/> | Cook ingredients according to | |
| Material specifications | <input type="checkbox"/> | specifications | <input type="checkbox"/> |
| Laboratory analyses of materials or | | Coat, fill, or decorate products with | |
| products | <input type="checkbox"/> | confectionery materials | <input type="checkbox"/> |
| Processing schedules | <input type="checkbox"/> | Fill or stuff moldings or casings with | |
| Formulas | <input type="checkbox"/> | materials | <input type="checkbox"/> |
| Recipes | <input type="checkbox"/> | Cut or slice products or materials into | |
| Work orders | <input type="checkbox"/> | specified size | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Spray products with coating materials | <input type="checkbox"/> |
| Determines: | | Hull materials | <input type="checkbox"/> |
| Manpower requirements for scheduled | | Shell materials | <input type="checkbox"/> |
| operations | <input type="checkbox"/> | Peel materials | <input type="checkbox"/> |
| Classifications of workers for operations | <input type="checkbox"/> | Wash and sterilize materials or dairy | |
| Material processing sequences | <input type="checkbox"/> | products processing equipment | <input type="checkbox"/> |
| Material processing requirements | <input type="checkbox"/> | Homogenize materials | <input type="checkbox"/> |
| Material requirements | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Routing of materials in process through | | Assists operator of machines or equipment | |
| processing stations | <input type="checkbox"/> | to process materials or products | <input type="checkbox"/> |
| Set up requirements for machines | <input type="checkbox"/> | Sets controls for specified: | |
| Control settings on machines and | | Temperature | <input type="checkbox"/> |
| equipment | <input type="checkbox"/> | Pressure | <input type="checkbox"/> |
| Adjustments to machines and equipment | | Vacuum | <input type="checkbox"/> |
| required | <input type="checkbox"/> | Material flow rates | <input type="checkbox"/> |

WHAT THE WORKER DOES—Continued

- | | | | |
|--|--------------------------|--|--------------------------|
| Material feed rates | <input type="checkbox"/> | Compares color of materials with standard charts of samples | <input type="checkbox"/> |
| Processing operations | <input type="checkbox"/> | Adds materials to solution or mixture to obtain specified: | |
| Weight of material | <input type="checkbox"/> | Concentration | <input type="checkbox"/> |
| Volume of material | <input type="checkbox"/> | Strength | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Color | <input type="checkbox"/> |
| Moves levers or controls to: | | Taste | <input type="checkbox"/> |
| Start or stop machines or equipment | <input type="checkbox"/> | Viscosity | <input type="checkbox"/> |
| Regulate speed of machines | <input type="checkbox"/> | Consistency | <input type="checkbox"/> |
| Set length of stroke on press ram | <input type="checkbox"/> | Acidity | <input type="checkbox"/> |
| Adjust processing operations | <input type="checkbox"/> | Neutralization | <input type="checkbox"/> |
| Regulate automatic feed mechanisms | <input type="checkbox"/> | Flavor | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Alcoholic proof | <input type="checkbox"/> |
| Monitors: | | Fermentation | <input type="checkbox"/> |
| Panelboard gages, meters, and lights | <input type="checkbox"/> | Germination | <input type="checkbox"/> |
| Recording instruments and indicators | <input type="checkbox"/> | Organic reaction | <input type="checkbox"/> |
| Temperature gages | <input type="checkbox"/> | Moves levers to dump processed materials into container or tank | <input type="checkbox"/> |
| Flow meters | <input type="checkbox"/> | Starts pumps to transfer materials into next processing unit or into storage tanks | <input type="checkbox"/> |
| Machine operations | <input type="checkbox"/> | Feeds materials into processing equipment or machines | <input type="checkbox"/> |
| Material processing operations | <input type="checkbox"/> | Offbears materials or products | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | | |
| Observes: | | Performs manual operations to: | |
| Workers to insure compliance with work directions, regulations, and safety rules | <input type="checkbox"/> | Mix, blend, or knead ingredients | <input type="checkbox"/> |
| Product for conformance with specifications | <input type="checkbox"/> | Shape, roll, and cut materials into specified shape | <input type="checkbox"/> |
| Color, texture, and consistency of materials | <input type="checkbox"/> | Apply glaze, topping, icing, or decorations on products | <input type="checkbox"/> |
| Operational performance of machines or equipment | <input type="checkbox"/> | Pull, spin, or roll confectionery products | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Dip products in solutions for curing, preserving, or salting | <input type="checkbox"/> |
| Calculates batch weights and proportions of materials or ingredients | <input type="checkbox"/> | Shackle legs of animals to be slaughtered | <input type="checkbox"/> |
| Weighs material or ingredients specified | <input type="checkbox"/> | Stun animals before slaughtering | <input type="checkbox"/> |
| Dumps materials or ingredients into tank, hopper, or kettle | <input type="checkbox"/> | Sever jugular vein of animals or poultry | <input type="checkbox"/> |
| Starts pumps and meters liquid ingredients into machine or equipment | <input type="checkbox"/> | Skin animals | <input type="checkbox"/> |
| Opens valves to fill tank, kettle, or other equipment to specified height | <input type="checkbox"/> | Pluck feathers and clean poultry | <input type="checkbox"/> |
| Opens valves to admit steam into mixture or jacket of kettle or cooker | <input type="checkbox"/> | Scale, clean, and butcher fish and shellfish | <input type="checkbox"/> |
| Starts agitators, mixing blades, or beaters | <input type="checkbox"/> | Trim meat from head of animal | <input type="checkbox"/> |
| Feels sample of mixture for specified texture or consistency | <input type="checkbox"/> | Saw or trim animal carcass | <input type="checkbox"/> |
| Draws sample of materials for laboratory analysis or testing on station | <input type="checkbox"/> | Cut out, trim, sort, and wash viscera | <input type="checkbox"/> |
| Tests solutions for: | | Wrap side of carcass | <input type="checkbox"/> |
| Specific gravity | <input type="checkbox"/> | Cut standard cuts of meats | <input type="checkbox"/> |
| Viscosity | <input type="checkbox"/> | Bone meat or poultry | <input type="checkbox"/> |
| Acidity | <input type="checkbox"/> | Cut up poultry and small game | <input type="checkbox"/> |
| Flavor | <input type="checkbox"/> | Hang meat or meat products in smoking or drying room | <input type="checkbox"/> |
| Alcoholic content or proof | <input type="checkbox"/> | Sort materials according to grade | <input type="checkbox"/> |
| | | Remove foreign matter from raw materials | <input type="checkbox"/> |
| | | Pack materials or products in freeze room | <input type="checkbox"/> |
| | | Sew or tie casing after filling with product | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

Management	<input type="checkbox"/>	Workers	<input type="checkbox"/>
Supervisors	<input type="checkbox"/>	Helpers	<input type="checkbox"/>
Technical Personnel	<input type="checkbox"/>	Crew Members	<input type="checkbox"/>
Other Supervisors	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Laboratory Personnel	<input type="checkbox"/>		

EDUCATION AND TRAINING

Record an "X" to indicate education and training requirements.

Elementary	<input type="checkbox"/>	Technical School	<input type="checkbox"/>
High School	<input type="checkbox"/>	Apprenticeship	<input type="checkbox"/>
Junior College	<input type="checkbox"/>	On-the-job Training	<input type="checkbox"/>
College	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Vocational School	<input type="checkbox"/>		

UNION AFFILIATION

Record an "X" to indicate union affiliation.

Teamsters Affiliated Locals: Dairy Employees and Drivers Union	<input type="checkbox"/>	Packing House Workers Union	<input type="checkbox"/>
Brewery, Soda, and Mineral Water Bottlers	<input type="checkbox"/>	Grain Millers Union	<input type="checkbox"/>
Food Processors, Packers, Warehouseman, and Clerical	<input type="checkbox"/>	Brewery and Brewery Workers Union	<input type="checkbox"/>
Bakery and Confectionery Workers, International Union of America	<input type="checkbox"/>	Bottlers Union	<input type="checkbox"/>
Butchers Union	<input type="checkbox"/>	Cannery Workers Union	<input type="checkbox"/>
Baker's Union	<input type="checkbox"/>	Packing House, Food, and Allied Workers Union	<input type="checkbox"/>
Food Processors, Helpers, and Sales Drivers Union	<input type="checkbox"/>	Distillery, Wine, and Allied Workers International Union	<input type="checkbox"/>
		Other (specify)	<input type="checkbox"/>

LICENSURE OR CERTIFICATION

Record an "X" to indicate licenses or certification required.

Federal	<input type="checkbox"/>	Local	<input type="checkbox"/>
State	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
County	<input type="checkbox"/>		

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, or work aids used.

Machines: Blanching machine	<input type="checkbox"/>	Conveyors: Belt conveyors	<input type="checkbox"/>
Blenders	<input type="checkbox"/>	Elevators	<input type="checkbox"/>
Blending tanks	<input type="checkbox"/>	Pneumatic conveyors	<input type="checkbox"/>
Casing machines: Casing running machine	<input type="checkbox"/>	Screw conveyors	<input type="checkbox"/>
Casing linking machine	<input type="checkbox"/>	Cleaning machines: Air cleaning machines	<input type="checkbox"/>
Casing stuffing machine	<input type="checkbox"/>	Lintar machines	<input type="checkbox"/>
Centrifuges	<input type="checkbox"/>	Washing machines	<input type="checkbox"/>

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

Coating machines:		Screening machines:	
Candy enrobing machine	<input type="checkbox"/>	Vibrating screens	<input type="checkbox"/>
Candy sanding machine	<input type="checkbox"/>	Sifting machines	<input type="checkbox"/>
Icing machines	<input type="checkbox"/>	Shaking machines	<input type="checkbox"/>
Spray coating machines	<input type="checkbox"/>	Carton forming, filling, and sealing	
Cake forming presses	<input type="checkbox"/>	machine	<input type="checkbox"/>
Cake stripping machines	<input type="checkbox"/>	Carton sealing machine	<input type="checkbox"/>
Coring machines	<input type="checkbox"/>	Packaging machines	<input type="checkbox"/>
Churning machines	<input type="checkbox"/>	Pitting machines	<input type="checkbox"/>
Doughnut making machines	<input type="checkbox"/>	Peeling machines	<input type="checkbox"/>
Cutting machines:		Pelletizing machines	<input type="checkbox"/>
Dividing machines	<input type="checkbox"/>	Pretzel forming machine	<input type="checkbox"/>
Dicing machines	<input type="checkbox"/>	Pan greasing machine	<input type="checkbox"/>
Halving machines	<input type="checkbox"/>	Shelling machines	<input type="checkbox"/>
Chopping machines	<input type="checkbox"/>	Wafer making machine	<input type="checkbox"/>
Grating machines	<input type="checkbox"/>	Dehairing machine	<input type="checkbox"/>
Mincing machines	<input type="checkbox"/>	Car tipple machine	<input type="checkbox"/>
Shredding machines	<input type="checkbox"/>	Presses:	
Silver cutting machine	<input type="checkbox"/>	Extruding presses	<input type="checkbox"/>
Slicing machines	<input type="checkbox"/>	Hydraulic presses	<input type="checkbox"/>
Hulling machines	<input type="checkbox"/>	Deoiling presses	<input type="checkbox"/>
Grain polishing machines	<input type="checkbox"/>	Sugar cube presses	<input type="checkbox"/>
Egg breaker and yolk separating machine	<input type="checkbox"/>	Pumps:	
Grinding mills:		Centrifugal pumps	<input type="checkbox"/>
Fuss mills	<input type="checkbox"/>	Vacuum pumps	<input type="checkbox"/>
Hammermills	<input type="checkbox"/>	Material transfer pumps	<input type="checkbox"/>
Impact mills	<input type="checkbox"/>	Stick inserting machines	<input type="checkbox"/>
Powder mills	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Roll mills	<input type="checkbox"/>		
Stone grinding mills	<input type="checkbox"/>	Tools:	
Mixing machines:		Handtools:	
Beater mixer machines	<input type="checkbox"/>	Wrenches	<input type="checkbox"/>
Batter mixer machines	<input type="checkbox"/>	Screwdrivers	<input type="checkbox"/>
Dough mixing machines	<input type="checkbox"/>	Knives:	
Mingling machines	<input type="checkbox"/>	Boning knives	<input type="checkbox"/>
Rotary drum mixing machine	<input type="checkbox"/>	Trimming knives	<input type="checkbox"/>
Vortator	<input type="checkbox"/>	Fillet knives	<input type="checkbox"/>
Filling machines:		Curd knives	<input type="checkbox"/>
Carton filling machines	<input type="checkbox"/>	Meat saws	<input type="checkbox"/>
Bag filling machines	<input type="checkbox"/>	Cleavers	<input type="checkbox"/>
Bottle filling machines	<input type="checkbox"/>	Scrapers	<input type="checkbox"/>
Pie filling machines	<input type="checkbox"/>	Spatulas	<input type="checkbox"/>
Molding machines	<input type="checkbox"/>	Spoons	<input type="checkbox"/>
Candy molding machine	<input type="checkbox"/>	Works	<input type="checkbox"/>
Curing injection machine	<input type="checkbox"/>	Brushes	<input type="checkbox"/>
Filters:		Icing bags	<input type="checkbox"/>
Char filters	<input type="checkbox"/>	Hand beaters	<input type="checkbox"/>
Filter presses	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Plate and frame filter presses	<input type="checkbox"/>		
Rotary leaf filter	<input type="checkbox"/>	Power handtools:	
Rotary drum vacuum filters	<input type="checkbox"/>	Electrical handtools	<input type="checkbox"/>
Sorting machines:		Pneumatic handtools	<input type="checkbox"/>
Electric eye sorting machines	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Sorting and sizing machines	<input type="checkbox"/>		
Sizing machines	<input type="checkbox"/>		

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

Equipment:

Processing tank equipment:

- Melting tanks
- Flotation tanks
- Settling tanks
- Mixing tanks
- Cistern tanks
- Weigh scale tanks
- Fermenting tanks
- Germination tanks
- Steeping tanks
- Brine tanks
- Brine making tanks
- Carbonation tanks
- Curing tanks
- Refrigerated tanks
- Proofing tanks
- Tempering tanks
- Other (specify)

- Sterilizing equipment
- Clean-in-place equipment
- Diffusing equipment
- Beet diffusing equipment
- Percolating equipment
- Smoking equipment
- Roasting equipment
- Continuous roasting equipment
- Crystallizers
- Sulfurizing equipment
- Smoking equipment
- Rectifier equipment
- Pasteurizers
- Homogenizers
- Continuous milk processing equipment
- Dehydrating equipment
- Evaporators
- Ovens
- Continuous baking ovens
- Retorts
- Oasts
- Furnaces
- Other (specify)

Processing rooms:

- Smoke rooms
- Wine cellars
- Proofing rooms
- Freeze rooms
- Other (specify)

Work Aids:

Measuring devices:

- Micrometers
- Refractometers
- Thermometers
- Salinometers
- Pyrometers
- Ph meters
- Hydrometers
- Alcohol proof hydrometer
- Titrometer
- Manometer
- Turbidometer
- Calorimeter
- Viscosimeter
- Flow meter
- Other (specify)

Manuals:

- Processing manuals
- Equipment operation manuals
- Safety manuals
- Other (specify)

Specifications:

- Processing specifications
- Material specifications
- Product specifications
- Other (specify)

- Station logs
- Production reports
- Processing reports
- Formulas
- Recipes
- Production forms
- Testing forms
- Proofsticks
- Molds
- Funnels
- Cooling slabs
- Heating slabs
- Warming slabs
- Skewers
- Airbases
- Waxpaper
- Mixing bowls
- Ultraviolet lamps
- Sorting tables
- Chopping blocks
- Color charts
- Other (specify)

PRODUCTS

Record an "X" to indicate type or product processed or produced

Type of food products:

- Baked
- Boiled
- Boned
- Bottled
- Brined
- Canned
- Concentrated
- Condensed
- Cooked
- Cultured
- Cured
- Dehydrated
- Deviled
- Dressed
- Dried
- Fermented
- Flash frozen
- Freeze dried
- Fresh
- Homogenized
- Jammed
- Jellied
- Kosher
- Packaged
- Paste
- Pasturized
- Pickled
- Potted
- Powdered
- Preserved
- Salted
- Smoked
- Spiced
- Steamed
- Stewed
- Stuffed
- Vitaminized
- Other (specify)

Meats and meat products:

- Bacon
- Beef
- Blood meal
- Corned beef
- Frankfurters
- Headcheese
- Lamb
- Luncheon meats
- Meat extracts
- Meat meal
- Mutton
- Pastrami

- Pigs feet
- Pork
- Sausage
- Scrapple
- Tripe
- Vienna sausage
- Other (specify)

Meat byproducts:

- Grease
- Hides
- Lard
- Tallow
- Other (specify)

Meat animal food:

- Horsemeat
- Bone meal
- Dog meat
- Cat meat
- Other (specify)

Poultry and poultry products:

- Chicken
- Cornish hen
- Duck
- Eggs
- Geese
- Turkey
- Other (specify)

Small game:

- Rabbit
- Hare
- Other (specify)

Seafood and seafood products:

- #### Finfish:
- Anchovies
 - Cod
 - Herring
 - Mackerel
 - Salmon
 - Sardines
 - Swordfish
 - Tuna
 - Other (specify)

Shellfish:

- Clam
- Crab
- Lobster
- Mussels

PRODUCTS - Continued

- | | | | |
|------------------------------------|--------------------------|------------------------------------|--------------------------|
| Oysters | <input type="checkbox"/> | Fruit nectar | <input type="checkbox"/> |
| Scallops | <input type="checkbox"/> | Fruit puree | <input type="checkbox"/> |
| Shrimp | <input type="checkbox"/> | Fruit pudding | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Fruit glaze | <input type="checkbox"/> |
| | | Fruit concentrate | <input type="checkbox"/> |
| Seafood products: | | Nuts: | |
| Caviar | <input type="checkbox"/> | Almond paste | <input type="checkbox"/> |
| Clam chowder | <input type="checkbox"/> | Nut oil | <input type="checkbox"/> |
| Finnan haddie | <input type="checkbox"/> | Vegetables | <input type="checkbox"/> |
| Fish egg bait | <input type="checkbox"/> | Vegetable pastes: | |
| Fish oil meal | <input type="checkbox"/> | Tomato ketchup | <input type="checkbox"/> |
| Fish oil: | | Tomato chili sauce | <input type="checkbox"/> |
| Cod liver oil | <input type="checkbox"/> | Tomato paste | <input type="checkbox"/> |
| Whale oil | <input type="checkbox"/> | Tomato puree | <input type="checkbox"/> |
| Fish pet foods | <input type="checkbox"/> | Vegetable juices | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Vegetable puree | <input type="checkbox"/> |
| | | Vegetable oils and spreads: | |
| Dairy products: | | Margarine | <input type="checkbox"/> |
| Anhydrous milkfat | <input type="checkbox"/> | Olive oil | <input type="checkbox"/> |
| Baby formulas | <input type="checkbox"/> | Salad oils | <input type="checkbox"/> |
| Butter | <input type="checkbox"/> | Corn oil | <input type="checkbox"/> |
| Buttermilk | <input type="checkbox"/> | Cottonseed oil | <input type="checkbox"/> |
| Butter oil | <input type="checkbox"/> | Soybean oil | <input type="checkbox"/> |
| Cheese: | | Castor oil | <input type="checkbox"/> |
| Cheese pastes | <input type="checkbox"/> | Coconut oil | <input type="checkbox"/> |
| Cheese spreads | <input type="checkbox"/> | Palm kernel oil | <input type="checkbox"/> |
| Chocolate milk | <input type="checkbox"/> | Peanut oil | <input type="checkbox"/> |
| Cream | <input type="checkbox"/> | Safflower oil | <input type="checkbox"/> |
| Ice cream | <input type="checkbox"/> | Vegetable cooking oil | <input type="checkbox"/> |
| Ice cream mix | <input type="checkbox"/> | Shortenings | <input type="checkbox"/> |
| Ice milk | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Kumyss | <input type="checkbox"/> | | |
| Lactose | <input type="checkbox"/> | Grain products: | |
| Malted milk | <input type="checkbox"/> | Breakfast cereals | <input type="checkbox"/> |
| Mellorine | <input type="checkbox"/> | Bran and middlings: | |
| Milk | <input type="checkbox"/> | Oat | <input type="checkbox"/> |
| Parfait | <input type="checkbox"/> | Rice | <input type="checkbox"/> |
| Sherbert | <input type="checkbox"/> | Rye | <input type="checkbox"/> |
| Spumoni | <input type="checkbox"/> | Wheat | <input type="checkbox"/> |
| Yogurt | <input type="checkbox"/> | Corn products: | |
| Zoolak | <input type="checkbox"/> | Corn flour | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Corn sirup | <input type="checkbox"/> |
| | | Corn oil cake | <input type="checkbox"/> |
| Agricultural food products: | | Corn oil meal | <input type="checkbox"/> |
| Fruits: | | Corn starch | <input type="checkbox"/> |
| Cider | <input type="checkbox"/> | Corn sugar | <input type="checkbox"/> |
| Fruit butter | <input type="checkbox"/> | Dextrine | <input type="checkbox"/> |
| Fruit cocktail | <input type="checkbox"/> | Dextrose | <input type="checkbox"/> |
| Fruit jelly | <input type="checkbox"/> | Gluten | <input type="checkbox"/> |
| Fruit juice | <input type="checkbox"/> | Hominy | <input type="checkbox"/> |
| Fruit jam | <input type="checkbox"/> | Hominy grits | <input type="checkbox"/> |
| Fruit marmalade | <input type="checkbox"/> | Flour: | |
| Fruit paste | <input type="checkbox"/> | Pizza | <input type="checkbox"/> |
| Fruit preserves | <input type="checkbox"/> | | |

PRODUCTS—Continued

- Buckwheat
- Rice
- Rye
- Sorghum grain
- Wheat
- Flour blends or mixes:
- Biscuit
- Cake
- Doughnut
- Gingerbread
- Pancake
- Phosphated
- Graham
- Starch:
- Potato
- Rice
- Root
- Wheat
- Oatmeal
- Other (specify)

- Bakery Products:
- Bagel
- Bread
- Buns
- Cakes
- Crispers
- Doughnuts
- Knishes
- Pastries
- Pies
- Rolls
- goods
-
- Crisps
- Ice cream cones
- Pretzels
- Sugar wafers
- Zwieback
- Other (specify)

- Sugar and sugar products:
- Beet sugar
- Beet molasses
- Blackstrap molasses
- Brown sugar
- Cane sugar
- Cane sirup
- Dried beet pulp
- Invert sugar
- Powdered sugar
- Sugar cubes
- Other (specify)

- Confectionary products:
- Candy
- Candy bars
- Chewing gum
- Chocolate candy
- Cough drops
- Licorice
- Lozenges
- Marshmallows
- Marzipan
- Nuts
- Baking chocolate
- Chocolate coatings
- Chocolate sirup
- Cocoa
- Other (specify)

- Beverages:
- Malt liquors:
- Ale
- Beer
- Near beer
- Stout
- Malt
- Vinous liquors:
- Brandy
- Brandy spirits
- Wine
- Distilled or blended liquors:
- Applejack
- Cocktails
- Cordials
- Ethyl alcohol
- Gin
- Liqueurs
- Rum
- Vodka
- Whiskey:
- Bourbon
- Rye
- Scotch
- Soft drinks and carbonated water:
- Birch beer
- Root beer
- Carbonated soda pop
- Ginger ale
- Mineral water
- Other (specify)

- Flavorings, Extracts, and Sirups:
- Beverage bases
- Bitters
- Burnt sugar
- Coffee flavoring and sirups

PRODUCTS Continued

Specialty foods:		Coffee concentrates	<input type="checkbox"/>
Baby foods	<input type="checkbox"/>	Ice:	
Corn chips	<input type="checkbox"/>	Cubes	<input type="checkbox"/>
Gelatin desserts	<input type="checkbox"/>	Crushed	<input type="checkbox"/>
Kraut	<input type="checkbox"/>	Block	<input type="checkbox"/>
Honey	<input type="checkbox"/>	Macaroni	<input type="checkbox"/>
Box lunches	<input type="checkbox"/>	Noodles	<input type="checkbox"/>
Peanut butter	<input type="checkbox"/>	Spaghetti	<input type="checkbox"/>
Potato chips	<input type="checkbox"/>	Vermicelli	<input type="checkbox"/>
TV dinners	<input type="checkbox"/>	Bakers malt	<input type="checkbox"/>
National native foods	<input type="checkbox"/>	Baking powder	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Chicory	<input type="checkbox"/>
Seasonings and dressings:		Instant cocoa	<input type="checkbox"/>
Food dressings	<input type="checkbox"/>	Instant chocolate	<input type="checkbox"/>
French dressing	<input type="checkbox"/>	Leavening preparations	<input type="checkbox"/>
Horseradish	<input type="checkbox"/>	Maple sirup	<input type="checkbox"/>
Mayonnaise	<input type="checkbox"/>	Marshmallow creme	<input type="checkbox"/>
Mustard	<input type="checkbox"/>	Pancake sirup	<input type="checkbox"/>
Pickles	<input type="checkbox"/>	Pectin	<input type="checkbox"/>
Relish	<input type="checkbox"/>	Tea	<input type="checkbox"/>
Russian dressing	<input type="checkbox"/>	Yeast	<input type="checkbox"/>
Soy sauce	<input type="checkbox"/>	Corn chips	<input type="checkbox"/>
Meat seasonings	<input type="checkbox"/>	Bouillon cubes	<input type="checkbox"/>
Spices	<input type="checkbox"/>	Cider	<input type="checkbox"/>
Vinegar	<input type="checkbox"/>	Gelatin preparations	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Meat seasonings	<input type="checkbox"/>
Miscellaneous food products:		Peanut butter	<input type="checkbox"/>
Coffee	<input type="checkbox"/>	Spices	<input type="checkbox"/>
Coffee extracts	<input type="checkbox"/>	Vinegar	<input type="checkbox"/>
Instant coffee	<input type="checkbox"/>	Potato chips	<input type="checkbox"/>
		Other (specify)	<input type="checkbox"/>

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

Agriculture	<input type="checkbox"/>	Financial	<input type="checkbox"/>
Commercial:		Government Service	<input type="checkbox"/>
Business Service	<input type="checkbox"/>	Industrial	<input type="checkbox"/>
Food and Beverage	<input type="checkbox"/>	Insurance	<input type="checkbox"/>
Lodging Service	<input type="checkbox"/>	Legal	<input type="checkbox"/>
Personal Service	<input type="checkbox"/>	Library	<input type="checkbox"/>
Printing and Publishing	<input type="checkbox"/>	Medical Service	<input type="checkbox"/>
Repair Service	<input type="checkbox"/>	Military	<input type="checkbox"/>
Sales	<input type="checkbox"/>	Nonprofit	<input type="checkbox"/>
Communications	<input type="checkbox"/>	Office Service	<input type="checkbox"/>
Conservation	<input type="checkbox"/>	Recreation	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Social Service	<input type="checkbox"/>
Correctional	<input type="checkbox"/>	Subsurface and Space	<input type="checkbox"/>
Educational	<input type="checkbox"/>	Transportation	<input type="checkbox"/>
Entertainment	<input type="checkbox"/>	Utilities	<input type="checkbox"/>
Exhibition Center	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

HISTORY, SOCIOLOGY, AND ANTHROPOLOGY WORK

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Plans, organizes, and conducts:

Historical research and studies to:

Reconstruct chronological accounts of current or past events:

Dealing with some phase of activity as:

- Individuals
- Social groupings
- Ethnic groupings
- Political groupings
- Geographic groupings
- Reconstruct a career or phase in a life of an individual
- Reconstruct the genealogical background of an individual or family
- Establish the descent from a specific ancestor and identify forebears
- Authenticate details of items peculiar to given historical period or specific locality
- Avoid anachronisms and inaccuracies in depicting items of a specific historical period
- Other (specify)

Sociological research and studies on:

- Origin and development of human beings
- Patterns of culture and social organization arising from group life in society
- Relationships between criminal law and the social order and causes of crime
- Group relationships in an industrial organization
- Punishment for, and prevention of, crime
- Management of penal institutions and rehabilitation of criminal offenders
- Rural problems caused by impact of scientific and industrial revolutions on the rural way of life
- Effect of physical environment and technology on spatial distribution of people and their activities
- Social problems arising from group or individual deviation from commonly accepted standards of conduct
- Social problems rooted in the failure of society to achieve its collective purposes
- Social patterns and distinctive problems resulting from urban environment
- Other (specify)

Physical anthropological research and studies concerning:

- Origin, evolution, and races of man
- Man's distribution and characteristics
- Meanings and causes of human physical differences
- Physical and physiological adaptations to different environments and heredity characteristics of living populations
- Growth patterns, sexual differences, and aging phenomena of human groups
- Other (specify)

Archeological research, expeditions, studies, and field work to:

- Reconstruct records of extinct or preliterate cultures
- Reconstruct records of literate periods of major civilizations

WHAT THE WORKER DOES—Continued

- Uncover, reconstruct, and preserve artifacts of civilizations
- Interpret artifacts according to civilization and period of history
- Other (specify)
- Ethnological research and comparative studies concerning:
 - Cultures, or selected aspects of living peoples of extinct races
 - Historical relationships or typographical classifications of cultures
 - Pre-industrial or non-western societies to ascertain the culture's:
 - Social and political organization
 - Religion
 - Economics
 - Mythology and traditions
 - Intellectual and social life
 - Other (specify)
- Scientific linguistics research and studies concerning:
 - Structure and development of a language
 - Words and their structural characteristics
 - Reconstructing and deciphering ancient languages
 - Components, structure, and relationship within a language
 - Origin, history, and development of words
 - Tracing derivation of words
 - Tracing meaning of words from origin in parent language to present usage
 - Development of improved methods of translation
 - Teaching of language to other than native speakers
 - Preparation of language teaching materials, dictionaries and handbooks
 - Reducing unwritten language to standardized written form
 - Preparation of literacy materials of the language
 - Other (specify)
- Identifies and states nature, scope, and area of research
- Develops methods, techniques, and means for collecting and evaluating data
- Directs and coordinates activities of research workers
- Researches sources of information
- Consults with experts or witnesses of events
- Organizes and evaluates data on basis of authenticity or relative significance
- Reduces and processes data
- Analyzes, classifies, and interprets:
 - Data on social phenomena as:
 - Communities
 - Social institutions
 - Ethnic minorities
 - Social classes
 - Social changes
 - Archeological findings in order to determine:
 - Age and period of artifacts or civilization
 - Cultural identity
 - Other (specify)
- Prepares:
 - Historical narrative, brief, or outline from data
 - Literary portrayal of character based on findings
 - Charts showing lines of descent and family relationship
 - History of family in narrative form
 - Historical accounts on:
 - Technological evolution within an industry
 - Manners and customs peculiar to a certain period
 - Development within specified discipline or field of work
 - Reports on anthropological findings as:
 - Human physique of race
 - Social customs
 - Artifacts located
 - Scientific papers or publications on research
 - Description of differences between two languages for improving translation methods
 - Other (specify)
- Applies anthropological data and techniques for solving problems of human relations in fields of:
 - Industrial relations
 - Race and ethnic relations
 - Social work
 - Public administration
 - Education
 - Public health
 - Foreign or transcultural programs
 - Other (specify)



WHAT THE WORKER DOES—Continued

Formulates theories from research for application in:		Other (specify)	<input type="checkbox"/>
Historical field	<input type="checkbox"/>	Studies human fossils and their meaning in terms of long range human evolution	<input type="checkbox"/>
Sociological field	<input type="checkbox"/>	Observes and measures bodily variations and physical attributes of existing human types	<input type="checkbox"/>
Anthropological field	<input type="checkbox"/>	Supervises and coordinates activities of workers engaged in:	
Ethnological field as:		Digging for archeological expeditions	<input type="checkbox"/>
General laws of cultural development	<input type="checkbox"/>	Uncovering ancient structures	<input type="checkbox"/>
Rules of social and cultural behavior	<input type="checkbox"/>	Locating artifacts	<input type="checkbox"/>
Value orientations	<input type="checkbox"/>	Locates and assembles components of artifacts	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Establishes chronological sequence of each culture from simpler to more complex and advanced levels	<input type="checkbox"/>
Acts as consultant on:		Preserves artifacts for display in museums	<input type="checkbox"/>
Problems of social policy for:		Other (specify)	<input type="checkbox"/>
Lawmakers	<input type="checkbox"/>		
Administrators	<input type="checkbox"/>		
Educators	<input type="checkbox"/>		
Government personnel	<input type="checkbox"/>		
Specified historical events	<input type="checkbox"/>		
Ethnic problems	<input type="checkbox"/>		

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

Library Personnel	<input type="checkbox"/>	Inmates	<input type="checkbox"/>
Archive Personnel	<input type="checkbox"/>	Groups	<input type="checkbox"/>
Historical Society Personnel	<input type="checkbox"/>	Individuals	<input type="checkbox"/>
Educational Personnel	<input type="checkbox"/>	Industrial Workers	<input type="checkbox"/>
Field Personnel	<input type="checkbox"/>	Civic Organizational Personnel	<input type="checkbox"/>
Correctional Personnel	<input type="checkbox"/>	Expedition Personnel	<input type="checkbox"/>
Judges	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Scientific Personnel	<input type="checkbox"/>		

EDUCATION AND TRAINING

Record an "X" to indicate speciality area or degree major.

Social Sciences	<input type="checkbox"/>	Sociology	<input type="checkbox"/>
Social Studies	<input type="checkbox"/>	Sociology and Anthropology	<input type="checkbox"/>
History	<input type="checkbox"/>	Sociology-Psychology	<input type="checkbox"/>
African History	<input type="checkbox"/>	Correctional Work/Administration	<input type="checkbox"/>
Ancient History	<input type="checkbox"/>	Social Work	<input type="checkbox"/>
Asian History	<input type="checkbox"/>	Social Service	<input type="checkbox"/>
European History	<input type="checkbox"/>	Anthropology	<input type="checkbox"/>
Medieval History	<input type="checkbox"/>	Archeology	<input type="checkbox"/>
Modern History	<input type="checkbox"/>	Ethnology	<input type="checkbox"/>
Nordic History	<input type="checkbox"/>	Philology	<input type="checkbox"/>
History and Government	<input type="checkbox"/>	Etymology	<input type="checkbox"/>
Oriental History	<input type="checkbox"/>	Linguistics	<input type="checkbox"/>
Polynesian History	<input type="checkbox"/>	Penology	<input type="checkbox"/>
U.S. History	<input type="checkbox"/>	Rural Sociology	<input type="checkbox"/>
Biography	<input type="checkbox"/>	Urban Sociology	<input type="checkbox"/>
Genealogy	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

DEGREE

Record an "X" to indicate degree.

BA	<input type="checkbox"/>	MS	<input type="checkbox"/>
MA	<input type="checkbox"/>	D CRIM	<input type="checkbox"/>
MCL	<input type="checkbox"/>	Ph D	<input type="checkbox"/>
M CRIM	<input type="checkbox"/>		

SUBJECTS AND COURSES

Record an "X" to indicate subjects or courses that develop skills for the occupation.

History:

Western Civilization	<input type="checkbox"/>	United States, Early National Period	<input type="checkbox"/>
History of England and Great Britain	<input type="checkbox"/>	United States, Jacksonian Democracy and the Sectional Crisis	<input type="checkbox"/>
History of the Americas	<input type="checkbox"/>	United States, Civil War and Reconstruction	<input type="checkbox"/>
History of the United States	<input type="checkbox"/>	United States, Emergence of an Industrial Society	<input type="checkbox"/>
History of Asia	<input type="checkbox"/>	United States, The Progressive Period and the Twenties	<input type="checkbox"/>
Ancient Greece	<input type="checkbox"/>	United States, The Great Depression, War, and Its Aftermath	<input type="checkbox"/>
Roman History	<input type="checkbox"/>	History of the Western Movement	<input type="checkbox"/>
Early Middle Ages	<input type="checkbox"/>	History of the South	<input type="checkbox"/>
High Middle Ages	<input type="checkbox"/>	Early California History	<input type="checkbox"/>
History of the Byzantine Empire	<input type="checkbox"/>	Recent California History	<input type="checkbox"/>
The Age of Renaissance	<input type="checkbox"/>	American Urban History	<input type="checkbox"/>
The Age of Reformation	<input type="checkbox"/>	Economic History of the United States	<input type="checkbox"/>
The Age of Absolutism	<input type="checkbox"/>	Social History of the United States	<input type="checkbox"/>
Age of Enlightenment	<input type="checkbox"/>	American Intellectual History	<input type="checkbox"/>
The French Revolution and Napoleon	<input type="checkbox"/>	Diplomatic History of the United States	<input type="checkbox"/>
Europe in the Nineteenth Century	<input type="checkbox"/>	Constitutional History of the United States	<input type="checkbox"/>
Europe Since 1914	<input type="checkbox"/>	History of the Afro-American in the United States	<input type="checkbox"/>
Early Balkan and Near Eastern History	<input type="checkbox"/>	Legal History of the United States	<input type="checkbox"/>
Recent Balkan and Near Eastern History	<input type="checkbox"/>	Imperial China	<input type="checkbox"/>
Northern Europe	<input type="checkbox"/>	Modern China	<input type="checkbox"/>
Social History of Europe Since 1800	<input type="checkbox"/>	Traditional Japanese Civilization	<input type="checkbox"/>
Foundation of Russia	<input type="checkbox"/>	Modern Japan	<input type="checkbox"/>
Modern Russia	<input type="checkbox"/>	The Early History of India	<input type="checkbox"/>
Russian and Soviet Cultural History	<input type="checkbox"/>	Modern India, Religious Thought	<input type="checkbox"/>
Tudor and Stuart England	<input type="checkbox"/>	History of Modern India	<input type="checkbox"/>
Hanoverian England	<input type="checkbox"/>	Intellectual History of Recent Japan	<input type="checkbox"/>
Victorian Britain	<input type="checkbox"/>	The Chinese Revolution	<input type="checkbox"/>
Recent Britain	<input type="checkbox"/>	Africa Before Partition	<input type="checkbox"/>
British Empire and Commonwealth	<input type="checkbox"/>	Modern and Contemporary Africa	<input type="checkbox"/>
Constitutional History of England	<input type="checkbox"/>	Historians and Historiography	<input type="checkbox"/>
Latin American Peoples	<input type="checkbox"/>	The Literature of History	<input type="checkbox"/>
Colonial Latin America	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
The Emerging Latin American Nations	<input type="checkbox"/>		
Modern Latin America	<input type="checkbox"/>	Sociology:	
History of Mexico	<input type="checkbox"/>	Principles of Sociology	<input type="checkbox"/>
The Caribbean Area	<input type="checkbox"/>		
Argentina	<input type="checkbox"/>		
Brazil	<input type="checkbox"/>		
Andean Nations of South America	<input type="checkbox"/>		
United States, Colonial Period	<input type="checkbox"/>		
United States, Age of Revolution	<input type="checkbox"/>		

SUBJECTS AND COURSES—Continued

Social Trends and Problems	<input type="checkbox"/>	Introduction to Cultural Anthropology	<input type="checkbox"/>
Elementary Statistics	<input type="checkbox"/>	Introduction to Archeology	<input type="checkbox"/>
Marriage	<input type="checkbox"/>	Introduction to Linguistics	<input type="checkbox"/>
The Family	<input type="checkbox"/>	Comparative World Ethnology	<input type="checkbox"/>
Sociology of Women	<input type="checkbox"/>	Comparative Social Systems	<input type="checkbox"/>
Social Psychology	<input type="checkbox"/>	Folklore	<input type="checkbox"/>
Sociology of Small Groups	<input type="checkbox"/>	Native Peoples of Latin America	<input type="checkbox"/>
Juvenile Delinquency	<input type="checkbox"/>	Contemporary Cultures of Latin America	<input type="checkbox"/>
Social Disorganization	<input type="checkbox"/>	Peoples of the Pacific	<input type="checkbox"/>
Population and Migration	<input type="checkbox"/>	Native Peoples of the USSR	<input type="checkbox"/>
Advanced Statistics	<input type="checkbox"/>	Cultures of China and East Asia	<input type="checkbox"/>
Human Ecology	<input type="checkbox"/>	Cultures of India and Southeast Asia	<input type="checkbox"/>
Rural-Urban Trends	<input type="checkbox"/>	Cultures of Africa	<input type="checkbox"/>
Social Stratification	<input type="checkbox"/>	Africa and the New World	<input type="checkbox"/>
Social Institutions	<input type="checkbox"/>	Prehistoric Cultures of Europe	<input type="checkbox"/>
Industrial Sociology	<input type="checkbox"/>	Early Civilizations of the Old World	<input type="checkbox"/>
Sociology of Sexual Behavior	<input type="checkbox"/>	Ancient Civilizations of the New World	<input type="checkbox"/>
Sociology of Religion	<input type="checkbox"/>	Prehistoric Cultures of North America	<input type="checkbox"/>
Social Control	<input type="checkbox"/>	Human Evolution	<input type="checkbox"/>
Symbolic Behavior	<input type="checkbox"/>	Human Variation	<input type="checkbox"/>
Criminology	<input type="checkbox"/>	Political Anthropology	<input type="checkbox"/>
Penology	<input type="checkbox"/>	Economic Anthropology	<input type="checkbox"/>
Ethnic Group Relations	<input type="checkbox"/>	Personality and Culture	<input type="checkbox"/>
Methods of Sociological Research	<input type="checkbox"/>	Language and Culture	<input type="checkbox"/>
Contemporary Sociological Theory	<input type="checkbox"/>	Linguistic Anthropology	<input type="checkbox"/>
Family Life Education	<input type="checkbox"/>	The Dynamics of Cultural Change	<input type="checkbox"/>
Sociology of Knowledge	<input type="checkbox"/>	Field Methods in Archeology	<input type="checkbox"/>
Research Methods	<input type="checkbox"/>	Analysis of Interpretation of Archeological Data	<input type="checkbox"/>
Sociological Theory	<input type="checkbox"/>	Methods in Ethnology and Social Anthropology	<input type="checkbox"/>
Population and Ecological Analysis	<input type="checkbox"/>	Linguistic Methodology in Morphology and Syntax	<input type="checkbox"/>
Sociology of the Aging	<input type="checkbox"/>	Methods in Physical Anthropology	<input type="checkbox"/>
Occupational Attitudes and Norms	<input type="checkbox"/>	History and Theory of Anthropology	<input type="checkbox"/>
Demography of Social Disorganization	<input type="checkbox"/>	Foundations of Anthropological Knowledge	<input type="checkbox"/>
Race Relations	<input type="checkbox"/>	Kinship and Social Organization	<input type="checkbox"/>
Social Statistics	<input type="checkbox"/>	Primitive and Peasant Economics and Development	<input type="checkbox"/>
Advanced Social Psychology	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Quantitative Sociology	<input type="checkbox"/>		
Other (specify)	<input type="checkbox"/>		
Anthropology:			
Introduction to Physical Anthropology	<input type="checkbox"/>		

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an 'X' to indicate machines, tools, equipment, and work aids used.

Machines and Equipment:		Hoists	<input type="checkbox"/>
Earth Moving Equipment:		Winches	<input type="checkbox"/>
Bulldozers	<input type="checkbox"/>	Cameras:	
Backhoes	<input type="checkbox"/>	Motion Picture Cameras	<input type="checkbox"/>
Motor Patrols	<input type="checkbox"/>	Still Cameras	<input type="checkbox"/>
Motorized Shovels:		Alidades	<input type="checkbox"/>
Clamshells	<input type="checkbox"/>	Laboratory Equipment	<input type="checkbox"/>
Bucket Shovels	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Pumps	<input type="checkbox"/>		

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

Tools:

- Spades
- Trowels
- Brushes
- Measuring Tools
- Other (specify)

Work Aids:

Data:

- Survey Data
- Historical Data
- Biographical Data
- Geographical Data
- Genealogical Data
- Zoological Data
- Topographical Data
- Botanical Data
- Prior Archeological Data
- Scientific Data
- Demographic Data
- Industrial Data
- Technological Data
- Criminal Data
- Physical Environment Data
- Other (specify)

Records:

- Birth Records
- Baptismal Records
- Death Records
- Marriage Records
- Archive Records

- Census Records
- Rural Population Records
- Church Records
- Diaries
- Personal Papers
- Wills
- Correspondence
- Court Records
- Other (specify)

Artifacts:

- Animal Fossils
- Human Fossils
- Skeletal Remains
- Parchments
- Scrolls
- Pottery
- Pictorial Artifacts
- Other (specify)

- Published Materials
- Pictorial Materials
- Cataloging Materials
- Adhesives
- Glues
- Preservatives
- Plane Tables
- Rigging Materials
- Precision Measuring Instruments
- Sketches
- Scientific Illustrations
- Other (specify)

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

- | | |
|--|---|
| Agriculture <input type="checkbox"/> | Financial <input type="checkbox"/> |
| Commercial: | Government Service <input type="checkbox"/> |
| Business Service <input type="checkbox"/> | Industrial <input type="checkbox"/> |
| Food and Beverage <input type="checkbox"/> | Insurance <input type="checkbox"/> |
| Lodging Service <input type="checkbox"/> | Legal <input type="checkbox"/> |
| Personal Service <input type="checkbox"/> | Library <input type="checkbox"/> |
| Printing and Publishing <input type="checkbox"/> | Medical Service <input type="checkbox"/> |
| Repair Service <input type="checkbox"/> | Military <input type="checkbox"/> |
| Sales <input type="checkbox"/> | Nonprofit <input type="checkbox"/> |
| Communications <input type="checkbox"/> | Office Service <input type="checkbox"/> |
| Conservation <input type="checkbox"/> | Recreation <input type="checkbox"/> |
| Construction <input type="checkbox"/> | Social Service <input type="checkbox"/> |
| Correctional <input type="checkbox"/> | Subsurface and Space <input type="checkbox"/> |
| Educational <input type="checkbox"/> | Transportation <input type="checkbox"/> |
| Entertainment <input type="checkbox"/> | Utilities <input type="checkbox"/> |
| Exhibition Center <input type="checkbox"/> | Other (specify) <input type="checkbox"/> |

INSTRUMENTS AND APPARATUS MANUFACTURING

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates activities concerned with manufacturing instruments, apparatus, devices, and related equipment used for such functional purposes as:

- Analyzing
- Computing
- Controlling
- Counting
- Detecting
- Directing
- Sighting and Viewing
- Measuring:
 - Gaging
 - Metering
- Indicating
- Recording
- Testing
- Timing
- Other (specify)

Supervises, and coordinates activities of, workers engaged in:

- Fabricating parts used in manufacture of products
- Assembling:
 - Parts into units or subassemblies
 - Parts, units, subassemblies, and hardware into completed product
- Inspecting:
 - Materials
 - Fabricated parts
 - Assemblies
 - Products
- Testing:
 - Parts, subassemblies, or products
- Calibrating instruments, apparatus, or devices
- Other (specify)

Plans or determines:

- Manpower requirements
- Work schedules
- Production schedules
- Worker schedules
- Worker training activities
- Testing activities
- Inspection activities
- Calibration activities
- Other (specify)

WHAT THE WORKER DOES—Continued

- Prepares work schedules
- Assigns workers to specific duties
- Gives work directions to workers concerning assigned duties
- Inspects random samples of work for conformance with specifications and standards
- Interprets production orders, specifications, drawings and technical data for workers
- Advises workers on methods and procedures for solving work problems
- Enforces worker compliance with established work practices, regulations, and safety rules
- Evaluates worker performance
- Recommends personnel actions, such as promotion, discharge, or disciplinary actions
- Requisitions materials, tools, parts, and equipment
- Keeps production and work records
- Prepares production reports
- Trains workers in:
 - Setup and operation of machines or equipment to fabricate or process parts
 - Subassembly methods and procedures
 - Inspection methods and procedures
 - Testing methods and procedures
 - Calibration of instruments and apparatus
 - Reworking defective materials, parts, and assemblies
 - Repairing instruments, apparatus, or equipment not meeting specification
 - Fabricating and assembling prototype parts and models of products
 - Other (specify)

- Coordinates work activities with activities of other departments
- Reads, analyzes, or reviews:
 - Product specifications
 - Production orders
 - Fabrication specifications
 - Assembly instructions and specifications
 - Blueprints
 - Engineering drawings or sketches
 - Operational specifications of products
 - Inspection report
 - Testing reports
 - Rework orders
 - Salvage procedures
 - Other (specify)

- Determines from data:
 - Material requirements

- Material specifications
- Machine fabricating operations required
- Hand fabricating operations
- Work aids required
- Subassembly procedures and sequences
- Product assembly procedures and sequences
- Inspection requirements
- Testing requirements
- Calibration methods and procedures
- Product rework or repair requirements
- Other (specify)

- Sets up machines and equipment for other workers
- Sets up and operates machines
- Controls operation of machines or equipment
- Tends machines or equipment setup by others
- Other (specify)

- Obtains machine fixtures, holding devices, tools, and work aids for required operations
- Installs, aligns, and secures:
 - Machine fixtures, holding devices, or tools in or onto machine
 - Dies or die sets
 - Workpiece in machine or holding device
 - Machine stops and guides
 - Tools in toolholders, chucks, or spindles
 - Other (specify)

- Moves controls or levers to:
 - Set machining speeds
 - Set speed of rotation of workpiece or machine
 - Set timers or temperatures for specified operations
 - Set pressure requirements for press operations
 - Position tool in relationship to workpiece
 - Feed tool onto workpiece
 - Start and stop machine or equipment
 - Readjust machine or equipment operation
 - Other (specify)

- Lays out on workpiece:
 - Reference lines and points

WHAT THE WORKER DOES--Continued

Location of holes	<input type="checkbox"/>	Inter-related parts in specified alignment and relationship to each other	<input type="checkbox"/>
Dimensional specifications	<input type="checkbox"/>	Setting specified clearances between moving parts	<input type="checkbox"/>
Optical element machining directions	<input type="checkbox"/>	Fastening or securing parts in place, using:	
Pattern outline	<input type="checkbox"/>	Clamps	<input type="checkbox"/>
Cutting lines	<input type="checkbox"/>	Screws	<input type="checkbox"/>
Bending and forming lines	<input type="checkbox"/>	Rivets	<input type="checkbox"/>
Contour and profile of part	<input type="checkbox"/>	Nuts and bolts	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Crimping or staking tools	<input type="checkbox"/>
		Solder	<input type="checkbox"/>
Fabricates instrument, apparatus, or equipment parts by such methods, as:		Brazes	<input type="checkbox"/>
Machining	<input type="checkbox"/>	Welds	<input type="checkbox"/>
Bending	<input type="checkbox"/>	Adhesives	<input type="checkbox"/>
Forming	<input type="checkbox"/>	Plastic Compound	<input type="checkbox"/>
Winding	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Die drawing	<input type="checkbox"/>		
Grinding	<input type="checkbox"/>	Comparing assembly with sample assembly	<input type="checkbox"/>
Lapping	<input type="checkbox"/>	Connecting and securing pins or wires to terminals	<input type="checkbox"/>
Polishing	<input type="checkbox"/>	Installing:	
Etching	<input type="checkbox"/>	Gear train	<input type="checkbox"/>
Engraving	<input type="checkbox"/>	Subassemblies	<input type="checkbox"/>
Glass blowing	<input type="checkbox"/>	Mechanical units	<input type="checkbox"/>
Electroforming	<input type="checkbox"/>	Electrical units	<input type="checkbox"/>
Painting	<input type="checkbox"/>	Optical elements	<input type="checkbox"/>
Electroplating	<input type="checkbox"/>	Electronic elements	<input type="checkbox"/>
Encapsulating	<input type="checkbox"/>	Attaching hands or needle points on dial faces	<input type="checkbox"/>
Filling	<input type="checkbox"/>	Securing cover or housing on unit, assembly or product	<input type="checkbox"/>
Charging	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Heat treating	<input type="checkbox"/>		
Crimping	<input type="checkbox"/>	Inspects materials, parts, or assemblies for such defects, as:	
Staking	<input type="checkbox"/>	Burrs	<input type="checkbox"/>
Cutting	<input type="checkbox"/>	Nicks	<input type="checkbox"/>
Stripping	<input type="checkbox"/>	Scratches	<input type="checkbox"/>
Glazing	<input type="checkbox"/>	Pitted plating	<input type="checkbox"/>
Sizing	<input type="checkbox"/>	Cracks	<input type="checkbox"/>
Covering	<input type="checkbox"/>	Optical power	<input type="checkbox"/>
Tempering	<input type="checkbox"/>	Loose connections	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Faulty welds, brazes, or soldering	<input type="checkbox"/>
		Faulty assembly	<input type="checkbox"/>
Prepares for assembly of parts, subassemblies, and products by:		Binding of moving parts	<input type="checkbox"/>
Obtaining specified parts, materials, and assemblies	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Selecting holding devices, tools, and work aids for specified assembly	<input type="checkbox"/>		
Arranging materials, tools, and work aids on work station	<input type="checkbox"/>	Measures parts for conformance with specifications for:	
Other (specify)	<input type="checkbox"/>	Length	<input type="checkbox"/>
		Width	<input type="checkbox"/>
Assembles parts or products by:		Height	<input type="checkbox"/>
Placing or positioning:			
Holding device, fixture, or jig specified for assembly function	<input type="checkbox"/>		
Base plate, housing, or part in device	<input type="checkbox"/>		

WHAT THE WORKER DOES—Continued

- Expansion of bellows
 - Contraction of bellows
 - Thickness of coating or plating
 - Other (specify)
- Tests part, assembly, or product by:
- Connecting to testing equipment or machine
 - Setting controls for specified:
 - Temperature
 - Current or voltage
 - Pressure
 - Vacuum
 - Speed
 - Starting equipment and observing:
 - Readings on gages and meters of testing equipment
 - Readings of instrument under test
 - Action of instrument for specified performance
 - Instrument for evidence of malfunctioning
 - Instrument for need of calibration
 - Immersing:
 - Part in water to detect leaks
 - Instrument in water of known temperature to insure accuracy of measurement
 - Instrument in liquid solution of known gravity to insure accuracy of reading
 - Records nature of tests and results in testing log
 - Analyzes test data to determine cause of malfunction
 - Enters cause of defect on rejection tag
 - Routes product for rework or salvage of usable parts
 - Other (specify)
- Calibrates instruments by:
- Connecting or installing instrument in calibrating machine or equipment
 - Starting equipment or machine
 - Observing indicator lights and gages on test panel board
 - Reading of meters or gages on instrument under test
 - Recording:
 - Temperatures at which controls or contacts react
 - Pressures at which instrument operates
 - Electrical resistance or other characteristic
- Computing:
- Differentials in degrees of temperatures
 - Differentials in pressures
 - Values of required resistance
 - Adjusting calibration screws
 - Resetting tension on springs
 - Adjusting bearings on calibrating arm
 - Adding weight to calibrating arm
 - Soldering wire of calibrating arm to bearing
 - Adding required ballast
 - Bending contacts for specified length of travel
 - Adjusting meshing of gears in gear trains
 - Repositioning magnet
 - Other (specify)
- Reworks:
- Parts to remove defects by:
- Filing
 - Grinding
 - Scraping
 - Lapping
 - Polishing
 - Burnishing
 - Straightening
 - Replating
 - Recoating
 - Recoloring
- Assemblies and products by:
- Disassembling unit or product
 - Examining parts, connections, and assembly
 - Moving parts to insure freedom of movement
 - Measuring parts for conformance with dimensional specifications
 - Measuring clearances between parts
 - Testing continuity of circuitry between parts
 - Removing and replacing defective parts
 - Soldering loose connections
 - Resetting clearances
 - Reassembling product or unit
 - Other (specify)
- Records rework activities and type or cause of defect
- Routes reworked assembly or product for testing or calibration

WHAT THE WORKER DOES - Continued

- Routes rejected products for salvage of usable parts Salvages and sorts usable parts
 Salvages and sorts usable products

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- Management Workers
 Supervisors Helpers
 Other Supervisors Laboratory Personnel
 Quality Control Personnel Other (specify)
 Engineering Personnel

EDUCATION AND TRAINING

Record an "X" to indicate education and training requirements.

- Elementary Apprenticeship
 High School Military Schooling
 Junior College On-the-job Training
 Vocational School Other (specify)
 Technical School

SUBJECTS AND COURSES

Record an "X" to indicate subjects and courses that develop a worker's skills.

Related Trade Theory:

Mathematics:

- Review and Basic Slide Rule
 Basic Rules of Algebra
 Solution of Irregularities
 Graphing
 Remainder Theorem
 Slope of a Line
 The Derivative
 Applications Involving Maxima Minima
 Applications of Negative, Fractional and Zero Components
 Exponential and Logarithmic Equations
 Sequences
 Fundamental Principles of Permutations and Combinations
 Probability Quality Control
 Functions
 Areas
 Rates, Derivatives, and Integration
 Volumes and Solids
 The LaPlace Transformation
 Other (specify)

Physics:

- Forces and Components
 Engineering Characteristics of Common Materials

- Rectilinear Motion in a Horizontal Plane
 Nonlinear Motion
 Work and Energy
 Simple Harmonic Motion
 Temperatures, Measurements, and Scales
 Heat Energy
 Transfer of Heat Energy
 Thermal Properties of Materials
 Gas Flow
 Hydrodynamics
 Hydrostatics
 The Magnetic Field
 The Electro-Magnetic Field
 Magnetic Properties of Matter
 Induced Electromotive Forces
 Coulomb's Law
 The Electric Field
 Electric Potential
 Capacitance Properties of Dielectrics
 Electrochemistry and Thermoelectricity
 Electronics
 Elementary Solid State Physics
 Sound-Wave Motion
 Sound-Vibrating Bodies
 The Nature and Propagation of Light
 Lenses and Lens Aberrations
 Optical Instruments

SUBJECTS AND COURSES - Continued

- | | | | |
|--|--------------------------|--|--------------------------|
| Mirrors | <input type="checkbox"/> | Psychology and Human Relations | <input type="checkbox"/> |
| Photoelectric-Photoresistive and
Photovoltaic Devices | <input type="checkbox"/> | Numerical Control | <input type="checkbox"/> |
| Diffraction and Polarization | <input type="checkbox"/> | Analytical Techniques in Systems Control | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Guidance and Control Techniques | <input type="checkbox"/> |
| Electrical Circuits AC and DC: | | Microminiaturization Problems and
Techniques | <input type="checkbox"/> |
| Resistance Calculations-Ohm's Law | <input type="checkbox"/> | Development of Supervisory Capabilities | <input type="checkbox"/> |
| Series and Parallel Circuits | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Networks | <input type="checkbox"/> | Instrumentation Technology: | |
| Electric Fields and Capacitance | <input type="checkbox"/> | Mechanical Measuring Principles: | |
| Magnetic Fields and Inductance | <input type="checkbox"/> | Review of Basic Principles | <input type="checkbox"/> |
| Meters | <input type="checkbox"/> | Pressure Gages | <input type="checkbox"/> |
| Sine Wave | <input type="checkbox"/> | Liquid and Gas Flow Measurement | <input type="checkbox"/> |
| Series Circuits, AC | <input type="checkbox"/> | Temperature Measurements | <input type="checkbox"/> |
| Parallel Circuits, AC | <input type="checkbox"/> | Humidity Instruments | <input type="checkbox"/> |
| Polyphase Circuits | <input type="checkbox"/> | Specific Gravity Measurements | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Viscosity Measurements | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |
| Electronics: | | Electrical Measuring Principles: | |
| Vacuum Tubes | <input type="checkbox"/> | Review of Fundamentals | <input type="checkbox"/> |
| Semiconductor Characteristics | <input type="checkbox"/> | Electrical Pressure Transducers | <input type="checkbox"/> |
| Power Supplies | <input type="checkbox"/> | Electrical Flow Devices | <input type="checkbox"/> |
| Audio Amplifiers | <input type="checkbox"/> | Electrical Level Transducers | <input type="checkbox"/> |
| Tuning Circuits | <input type="checkbox"/> | Electrical Temperature Transducers | <input type="checkbox"/> |
| Radio-Frequency Amplifiers | <input type="checkbox"/> | Potentiometric Devices | <input type="checkbox"/> |
| Detector Circuits | <input type="checkbox"/> | Indicating, Recording, and Registering
Equipment | <input type="checkbox"/> |
| Electronic Instruments | <input type="checkbox"/> | Analytical Instruments | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Radiation Type Instruments | <input type="checkbox"/> |
| | | Humidity-Measuring Devices | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |
| Technical Reporting: | | Instrument Shop Practices: | |
| Diagnostic Tests | <input type="checkbox"/> | Safety Rules and Precautions | <input type="checkbox"/> |
| Technical Sketching | <input type="checkbox"/> | Organization and Function | <input type="checkbox"/> |
| Dimensional Drawing | <input type="checkbox"/> | General Classifications of Instruments | <input type="checkbox"/> |
| Pictorial Drawing | <input type="checkbox"/> | Records Required | <input type="checkbox"/> |
| Electrical and Electronic Symbols | <input type="checkbox"/> | Test Fixtures | <input type="checkbox"/> |
| Instrumentation Symbols | <input type="checkbox"/> | Assembly of Common Mechanical and
Pneumatic Instruments | <input type="checkbox"/> |
| Sketch of Simple Instrumentation-
Installation | <input type="checkbox"/> | Performance Tests | <input type="checkbox"/> |
| Graphical Presentation of Data | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| The Engineering Report | <input type="checkbox"/> | | |
| Other (specify) | <input type="checkbox"/> | Control Principles and Telemetry: | |
| | | What Constitutes a Process | <input type="checkbox"/> |
| Communication skills: | | Process Characteristics: | |
| Sentence Structure | <input type="checkbox"/> | Static Conditions | <input type="checkbox"/> |
| Using Resource Materials | <input type="checkbox"/> | Kinetic Conditions | <input type="checkbox"/> |
| Written Expression | <input type="checkbox"/> | Responses of Components and Systems | <input type="checkbox"/> |
| Talking and Listening | <input type="checkbox"/> | Energy Characteristics of the Process | <input type="checkbox"/> |
| Improving Reading Efficiency | <input type="checkbox"/> | Feedback Control System: | |
| Other (specify) | <input type="checkbox"/> | Closed Loop | <input type="checkbox"/> |
| | | Open Loop | <input type="checkbox"/> |
| General and Industrial Economics | <input type="checkbox"/> | | |
| Industrial Organizations and Institutions | <input type="checkbox"/> | | |
| Facilities, Equipment, and Costs | <input type="checkbox"/> | | |
| Chemistry for Instrumentation | <input type="checkbox"/> | | |

- Pneumatic and Hydraulic Controllers and Final Operators
- Other (specify)
- Calibration and Standardization:
 - Calibration to Laboratory Standards
 - Calibration to Plant Standards
 - Calibration and Adjustment of:
 - Mechanical Instruments
 - Pneumatic Instruments

- Electrical Instrument:
 - Pressure
 - Temperature
 - Flow
 - Level
 - Pressure Transmitters
 - Voltmeters-Ammeters
 - Potentiometers
 - Portable Instruments
 - Other (specify)

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

- Machines:
 - Machine tools:
 - Lathes
 - Milling machines
 - Shapers
 - Routers
 - Drill presses
 - Surface grinders
 - Metal forming machines:
 - Bending machine
 - Brake
 - Draw roll machine
 - Forming roll
 - Presses:
 - Arbor press
 - Hydraulic press
 - Straightening press
 - Punch press
 - Stamping press
 - Shears
 - Saws
 - Pumps
 - Vacuum pumps
 - Other (specify)

- Soldering iron
- Soldering gun
- Pipe wrenches
- Hammers
- Power handtools
- Other (specify)
- Equipment:
 - Chemical etching
 - Heat treating
 - Tempering
- Induction:
 - Welding
 - Brazing
- Scales:
 - Beam Scales
 - Laboratory scales
- Ovens
- Furnaces
- Welding equipment:
 - Flash
 - Spot
 - Seam
 - Other (specify)

- Tools:
 - Pliers
 - Screwdrivers
 - Wrenches
 - Files
 - Scrapers
 - Tweezers
 - Wire cutters
 - Wire strippers
 - Crimping tools
 - Staking tools
 - Scissors
 - Flaring tools
 - Flanging tools
 - Scribers

- Work Aids:
 - Measuring devices:
 - Balance gage
 - Center gage
 - Dial indicator
 - Feeler gage
 - Height gage
 - Plug gage
 - Surface plate
 - Thickness gage
 - Thread gage
 - Wire gage
 - Gage blocks:
 - Johannsen blocks
 - Parallel blocks

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

V-blocks	<input type="checkbox"/>	Ultrasonic test equipment	<input type="checkbox"/>
Micrometers:	<input type="checkbox"/>	Electrical test equipment	<input type="checkbox"/>
Depth micrometer	<input type="checkbox"/>	Electronic test equipment	<input type="checkbox"/>
Flange micrometer	<input type="checkbox"/>	Bridge gages	<input type="checkbox"/>
Inside micrometer	<input type="checkbox"/>	Physical characteristics test equipment	<input type="checkbox"/>
Outside micrometer	<input type="checkbox"/>	Calibrating equipment	<input type="checkbox"/>
Straightedges	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Depth rules	<input type="checkbox"/>		
Optical comparator	<input type="checkbox"/>	Acceptance slips	<input type="checkbox"/>
Meters:		Approval slips	<input type="checkbox"/>
Potentiometer	<input type="checkbox"/>	Rejection slips	<input type="checkbox"/>
Manometer	<input type="checkbox"/>	Blueprints	<input type="checkbox"/>
Tachometer	<input type="checkbox"/>	Engineering drawings	<input type="checkbox"/>
Galvanometer	<input type="checkbox"/>	Inspection reports	<input type="checkbox"/>
Dynamometer	<input type="checkbox"/>	Inspection orders	<input type="checkbox"/>
Frequency meter	<input type="checkbox"/>	Records	<input type="checkbox"/>
Photometer	<input type="checkbox"/>	Production orders	<input type="checkbox"/>
Ammeter	<input type="checkbox"/>	Production reports	<input type="checkbox"/>
Voltmeter	<input type="checkbox"/>	Formulas	<input type="checkbox"/>
Multimeter	<input type="checkbox"/>	Flight simulation equipment	<input type="checkbox"/>
Light meter	<input type="checkbox"/>	Fabricating specifications	<input type="checkbox"/>
Spectrophotometer	<input type="checkbox"/>	Assembly specifications	<input type="checkbox"/>
Spectrometer	<input type="checkbox"/>	Sample assemblies	<input type="checkbox"/>
Densitometer	<input type="checkbox"/>	Holding devices	<input type="checkbox"/>
Thermometer	<input type="checkbox"/>	Jigs	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Fixtures	<input type="checkbox"/>
Loupes	<input type="checkbox"/>	Schedules	<input type="checkbox"/>
Oscilloscope	<input type="checkbox"/>	Calibration standards	<input type="checkbox"/>
Binocular microscope	<input type="checkbox"/>	Salvage reports	<input type="checkbox"/>
Stress-strain recorder	<input type="checkbox"/>	Rework reports	<input type="checkbox"/>
Hydraulic test equipment	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

PRODUCTS

Record an "X" to indicate use, type, or instrument, apparatus, or equipment.

Instrument, Apparatus, Device Uses:		Photogrammetry	<input type="checkbox"/>
Aeronautical	<input type="checkbox"/>	Scientific	<input type="checkbox"/>
Commercial	<input type="checkbox"/>	Surgical	<input type="checkbox"/>
Dental	<input type="checkbox"/>	Surveying	<input type="checkbox"/>
Drafting	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Engineering	<input type="checkbox"/>		
Industrial	<input type="checkbox"/>	Types of Instruments, Apparatus, and Devices:	
Laboratory:		Accoustical	<input type="checkbox"/>
Chemical laboratory	<input type="checkbox"/>	Electromechanical	<input type="checkbox"/>
Clinical laboratory	<input type="checkbox"/>	Electrical	<input type="checkbox"/>
Pathological laboratory	<input type="checkbox"/>	Electronic	<input type="checkbox"/>
Research laboratory	<input type="checkbox"/>	Electrical-electronic	<input type="checkbox"/>
Testing laboratory	<input type="checkbox"/>	Electro-optical	<input type="checkbox"/>
Mathematical	<input type="checkbox"/>	Electromagnetic	<input type="checkbox"/>
Meteorological	<input type="checkbox"/>	Mechanical	<input type="checkbox"/>
Medical	<input type="checkbox"/>	Mechanical-optical	<input type="checkbox"/>
Navigation	<input type="checkbox"/>	Optical	<input type="checkbox"/>
Nautical	<input type="checkbox"/>	Pneumatic	<input type="checkbox"/>

PRODUCTS—Continued

- Ultrasonic
- Other (specify)
- Analyzing Instruments, Equipment:**
 - Dust sampling and analyzing equipment
 - Electrical characteristics testing analyzers:
 - Internal combustion engines
 - Radio apparatus
 - Electron tube
 - Gas analyzers
 - Nuclear monitoring pulse analyzers
 - Optical analysis equipment
 - Petroleum analysis equipment
 - Physical properties analysis equipment
 - Spectrum analyzers
 - Telegraph distortion analyzer
 - Thermomagnetic oxygen analyzer
 - Waveform analyzing equipment
 - Other (specify)
- Computing Instruments, Equipment:**
 - Mathematical integrators
 - Percentage correctors
 - Wind correctors
 - Aircraft engine fuel totalizers
 - Gun data computers
 - Slide rules
 - Other (specify)
- Controlling Instruments:**
 - Aircraft engine synchronizers
 - Air traffic control systems
 - Bimetallic element controls
 - Combustion controls
 - Control receivers
 - Control systems
 - Digital command units
 - Engine bleeding control cabinets
 - Fire control equipment
 - Fuel mixture controls
 - Gas governors
 - Gas regulators
 - Heat regulators
 - Hydraulic system controls
 - Inertial guidance systems
 - Liquid flow controls
 - Liquid level controls
 - Missile control systems
 - Nuclear reactor controls
 - Oxygen regulators
 - Pressure regulators:
 - Bellows tube type
 - Bourdon tube type
 - Diaphragm type
- Revolution controls
- Sequential controls
- Telemetry equipment
- Thermostatic controls
- Thermostats
- Timing controls
- Other (specify)
- Counting Instruments, Equipment:**
 - Electro gamma ray loggers
 - Gieger counters
 - Lineal tallying registers
 - Revolution counters
 - Turnstile counters
 - Tally registers
 - Other (specify)
- Detecting Instruments, Equipment:**
 - Electronic field detection apparatus
 - Electronic control detection systems
 - Fire detection apparatus
 - Infra-red object detection apparatus
 - Light and heat detection apparatus
 - Mine detectors, electronic
 - Magnetic field detectors
 - Nuclear radiation detectors and monitors
 - Personnel dosimetry devices
 - Probes:
 - Immersion temperature probes
 - Temperature probes
 - Aerodynamic probes
 - Radar object detection apparatus
 - Radio field strength detectors
 - Scintillation detectors
 - Sensing devices
 - Sound detection equipment
 - Stress, strain, and flaw detector apparatus
 - Underwater sound detection equipment
 - Other (specify)
- Directing Instrument, Equipment:**
 - Compasses:
 - Magnetic compasses
 - Gyrocompasses
 - Radio compasses
 - Radio beams
 - Radio direction finders
 - Gun directors
 - Loran equipment
 - Other (specify)
- Indicating Instruments:**
 - Acceleration indicator
 - Airspeed indicator

PRODUCTS—Continued

- Angle of attack indicator
- Angle of yaw indicator
- Combustion indicator
- Drift indicator
- Electrical characteristics indicator
- Glide slope indicator
- Horizontal flight indicator
- Hydraulic pressure indicator
- Omni bearing indicator
- Pictorial position indicator
- Physical characteristics indicator
- Position indicator:
 - Landing gear position
 - Cowl flap position
 - Stabilizer position
- Radiomagnetic indicator
- Rate of climb indicator
- Salinity indicator
- Other (specify)

Measuring Instruments, Equipment:

Gages:

- Acidity gages
- Alkalinity gages
- Combustion gages
- Density gages
- Humidity gages
- Liquid level gages
- Liquid flow gages
- Pressure gages
- Temperature gages
- Bridge gages:
 - Kelvin
 - Megohm
 - Vacuum tube
 - Wheatstone
- Other (specify)

Meters:

- Accelerometers
- Ammeters
- Audiometers
- Barometers:
 - Aneroid
 - Mercury
- Colorimeters
- Condensate meters
- Decibel meters
- Demand meters
- Dynamometers
- Drift meters
- Fathometers
- Fuel meters
- Gas meters
- Galvanometers

- Gasoline dispensing meters
- Hydrometers
- Inclinometers
- Integrating meters
- Mach meters
- Manometers
- Moisture density meters
- Odometers
- Ohmmeters
- Phase angle meters
- Ph meter
- Photometer
- Photopotimeters
- Pitometers
- Pitot tubes
- Planimeters
- Power factor meters
- Potentiometers
- Pyrometers
- Refractometers
- Reflectometers
- Radio field strength meters
- Seismometers
- Spectrometers
- Speedometers
- Tachometers
- Thermometers
- Titrometers
- Turbidimeters
- Turbine flow meters
- Voltmeters
- Watt meters:
 - Watt hour meters
 - Watt hour and demand meters
 - Watt hour and timeswitch meters
- Water meters
- Other (specify)

Precision Mechanical Measuring

Instruments:

- Angle rings
- Calipers
- Dividers
- Gage blocks
- Micrometers
- Optical comparators
- Verniers
- Surface plates
- Other (specify)

Sighting and Viewing Instruments:

- Binoculars
- Bomb sights
- Bore scopes

PRODUCTS—Continued

- Chronoscopes
- Field glasses
- Gun sights
- Height finders
- Microprojectors
- Microscopes
- Optical Interferometers
- Periscopes
- Polariscopes
- Range finders
- Reflectoscopes
- Shadowgraphs
- Spectroscopes
- Spy glasses
- Telescopes
- Other (specify)

- Testing Instruments, Apparatus,
Equipment:**
- Aircraft hydraulic control testing
units
- Coal testing apparatus
- Circuit digital testing equipment
- Electrical characteristic test equipment:
- Electrical quantities
- Resistance
- Voltage
- Environmental testing equipment
- Electron tube testing equipment
- Ignition harness testing equipment
- Ignition testing equipment
- Kinematic testing and measuring
equipment
- Physical characteristics testing
equipment:
- Abrasion tester
- Burst tester
- Ductility tester
- Elongation tester
- Hardness tester
- Material fatigue tester
- Shear strength tester
- Tensile strength tester
- Torque tester
- Torsion tester
- Pump testing units
- Microwave testing equipment
- Semiconductor test equipment
- Sewage testing equipment
- Turntable indicator tester
- Other (specify)

- Medical Instruments, Apparatus,
Equipment:**
- Bronchoscopes

- Cystoscopes
- Gastrosopes
- Ophthalmic:
- Trail cases
- Ophthalmometers
- Ophthalmoscopes
- Corneal microscopes
- Slit lamps
- Muscle exercise apparatus
- Optometers
- Pelvimeters
- Speculums
- Sphygomanometer
- Tonometer
- Stethoscopes
- Stethographs
- Anesthesia apparatus
- Anthropometrical apparatus
- Blood typing equipment
- Blood transfusion equipment
- Bone drills
- Bone rongeurs
- Forceps
- Hypodermics
- Inhalators
- Surgical:
- Knives
- Needle holders
- Saws
- Probes
- Suture needles
- Operating tables
- Trocars
- Physician's diagnostic equipment
- Dental instruments and apparatus
- Veterinarian instruments and
 apparatus
- Other (specify)

- Surveying Instruments:**
- Alidades
- Transits
- Levels
- Theodolites
- Plumb bobs
- Rods
- Chains
- Tapes
- Other (specify)

- Laboratory Apparatus and Equipment:**
- Bunsen burners
- Centrifuges
- Furnaces
- Flasks

PRODUCTS—Continued

- | | | | |
|---|--------------------------|--|--------------------------|
| Ovens | <input type="checkbox"/> | Counter measure simulators | <input type="checkbox"/> |
| Scales | <input type="checkbox"/> | Digital encoders | <input type="checkbox"/> |
| Incubators | <input type="checkbox"/> | Flight simulators | <input type="checkbox"/> |
| Distilling equipment | <input type="checkbox"/> | Hydrophones | <input type="checkbox"/> |
| Colormetric hydrogen ion equipment | <input type="checkbox"/> | Light and heat emission operating
equipment | <input type="checkbox"/> |
| Laser instruments | <input type="checkbox"/> | Pulsed electron guns | <input type="checkbox"/> |
| Maser instruments | <input type="checkbox"/> | Railing signaling devices | <input type="checkbox"/> |
| Laser beam alinement devices | <input type="checkbox"/> | Sound signaling devices .. | <input type="checkbox"/> |
| Magnetic idcalization generators | <input type="checkbox"/> | Television monitors .. | <input type="checkbox"/> |
| Pellicle mirrors | <input type="checkbox"/> | Time decoders | <input type="checkbox"/> |
| Vacuum pumps | <input type="checkbox"/> | Traffic signals | <input type="checkbox"/> |
| Standards and calibrating equipment' | <input type="checkbox"/> | Transponders | <input type="checkbox"/> |
| Amplifiers for nuclear reactors | <input type="checkbox"/> | Weapon simulators | <input type="checkbox"/> |
| Micromanipulators | <input type="checkbox"/> | Chromatographic equipment | <input type="checkbox"/> |
| Nuclear radiation sample changers | <input type="checkbox"/> | Cinetheodolites | <input type="checkbox"/> |
| Nucelar radiation scalars | <input type="checkbox"/> | Contour projectors | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Dyna-lens | <input type="checkbox"/> |
| Miscellaneous Instruments, Apparatus,
Equipment: | | Electron microprobes | <input type="checkbox"/> |
| Audio frequency oscillators | <input type="checkbox"/> | Magnifying instruments: | |
| Radio frequency oscillators | <input type="checkbox"/> | Binocular microscopes | <input type="checkbox"/> |
| Oscillographs | <input type="checkbox"/> | Loupes | <input type="checkbox"/> |
| Pulse signal generators | <input type="checkbox"/> | Photomicrographic apparatus | <input type="checkbox"/> |
| Microwave signal generators | <input type="checkbox"/> | Polarizers | <input type="checkbox"/> |
| Telephone pressurization units | <input type="checkbox"/> | Prisms | <input type="checkbox"/> |
| Accelerating wave guide structures | <input type="checkbox"/> | Spectographs | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

- | | | | |
|-------------------------------|--------------------------|----------------------------|--------------------------|
| Agriculture | <input type="checkbox"/> | Financial | <input type="checkbox"/> |
| Commercial: | | Government Service | <input type="checkbox"/> |
| Business Service | <input type="checkbox"/> | Industrial | <input type="checkbox"/> |
| Food and Beverage | <input type="checkbox"/> | Insurance | <input type="checkbox"/> |
| Lodging Service | <input type="checkbox"/> | Legal | <input type="checkbox"/> |
| Personal Service | <input type="checkbox"/> | Library | <input type="checkbox"/> |
| Printing and Publishing | <input type="checkbox"/> | Medical Service | <input type="checkbox"/> |
| Repair Service | <input type="checkbox"/> | Military | <input type="checkbox"/> |
| Sales | <input type="checkbox"/> | Nonprofit | <input type="checkbox"/> |
| Communications | <input type="checkbox"/> | Office Service | <input type="checkbox"/> |
| Conservation | <input type="checkbox"/> | Recreation | <input type="checkbox"/> |
| Construction | <input type="checkbox"/> | Social Service | <input type="checkbox"/> |
| Correctional | <input type="checkbox"/> | Subsurface and Space | <input type="checkbox"/> |
| Educational | <input type="checkbox"/> | Transportation | <input type="checkbox"/> |
| Entertainment | <input type="checkbox"/> | Utilities | <input type="checkbox"/> |
| Exhibition Center | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

KNITTING MILL WORK

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates mill activities concerned with manufacturing of:

Knitted:

- Fabrics
- Women's hosiery
- Hose, stockings, and socks
- Outerwear
- Underwear
- Articles other than wearing apparel (specify)

Supervises, and coordinates activities of, workers engaged in:

- Setting up, adjusting, and repairing machines and/or equipment
- Operating or controlling machines or equipment to:
 - Process or prepare yarn for knitting operation
 - Knit parts of or complete products
 - Assemble knitted parts into finished product
 - Dye products specified color
 - Finish or convert fabric or product
- Boarding of products
- Labeling or marking products
- Inspecting products
- Reworking defective products
- Pressing, boxing, and/or packaging of products
- Quality control operations
- Other (specify)

Studies, reviews, or analyzes:

- Production schedules
- Material specifications
- Processing specifications
- Fabric specifications
- Product specifications
- Schedules
- Other (specify)

Determines:

- Processing sequences and requirements
- Fiber preparation requirements
- Yarn size, type, texture, and quantity required for each product
- Setup of machines and equipment for manufacturing product
- Knitting machine pattern chains
- Dyeing requirements
- Product finishing or converting operations
- Quality control requirements

WHAT THE WORKER DOES—Continued

- Manpower requirements
- Other (specify)
- Prepares:
- Warp pattern sheets
- Machine or equipment setup directions
- Processing schedules
- Work schedules
- Reports
- Other (specify)
- Assigns workers to specific duties
- Interprets production orders, product specifications, and technical data for workers
- Gives workers directions for performing assigned duties
- Advises workers on methods and procedures for solving work problems
- Reviews inspection and test reports
- Orders changes in processing operations for correcting defects
- Coordinates department activities with those of other departments
- Requisitions materials and supplies
- Trains workers in:
- Setup, adjustment, and maintenance of machines and equipment
- Operation of machines and equipment
- Performing assigned duties
- Notifies maintenance personnel of needed machine or equipment repairs
- Enforces worker compliance with established:
- Work procedures
- Company regulations
- Safety rules and regulations
- Observes workers performing duties for compliance with work directions
- Keeps processing or production records
- Other (specify)
- Sets up machines or equipment for other workers
- Sets up and operates machines
- Operates machines
- Controls operation of processing equipment
- Tends mill machines, machinery, or equipment
- Assists in operation of machines or equipment
- Feeds materials or inprocess products into machines or equipment
- Offbears materials or products from machines or equipment
- Other (specify)
- Reads setup instructions for specified machine operation
- Determines from instructions:
- Arrangement of pattern plates on chain
- Flate perforations requiring covering
- Gears, cams, buttons, links, or needle packs requiring change
- Temperatures, pressures, vacuum setting
- Machine settings
- Other (specify)
- Disassembles and/or removes from machine or equipment:
- Rollers
- Pulleys
- Pattern chains
- Gears and cams
- Beam
- Rolls
- Guides
- Bars
- Other (specify)
- Selects specified replacement parts or accessory equipment
- Installs, alines, sets clearances, and secures parts and/or equipment
- Inserts cams, links, buttons, and needle packs in pattern plates or chain
- Turns setscrews, handwheels, or controls to:
- Obtain:
- Specified clearances between moving parts
- Specified spacing of knives on cutting shaft
- Specified tension on materials
- Specified pressure on materials
- Regulate:
- Speed of feed rollers
- Operating:
- Pressures
- Vacuums
- Temperatures
- Synchronize speed of:
- Yarn carriers
- Dividers
- Needles
- Sinkers
- Machine or equipment units with other units

WHAT THE WORKER DOES—Continued

Admit:

- Steam in box or heating coils
- Water into mixing tank or drum

Adjust:

- Width of spreaders or tension guides
- Operation of machine or equipment to correct manufacturing defects

- Start or stop machine or equipment operations
- Other (specify)

Threads or pulls yarn, material, or

product:

Through:

Onto:

Over:

Under:

Between:

- Drop wires
- Tension devices
- Stop motion devices
- Measuring devices
- Spreading devices
- Needle eyes
- Feed rolls
- Pressure rolls or rollers
- Guides
- Rotary knives
- Arm of machine
- Forms
- Head blocks
- Guide or other bars
- Other (specify)

Positions or places:

- Creel
- Bars or rods for knitting operations or looping operations, as:
 - Transfer bar
 - Picot bar
 - Needle bar
 - Welt bar
 - Welt rod
- Roll of material on shaft, stand, or feed rod
- Tube, bobbin, or cone on takeup or winding roll
- Garment on sized model form
- Hosiery on inspection boards
- Other (specify)

Removes:

- Basting stitches or loose threads
- Garments at end of steaming cycle
- Stains or spots from garments
- Other (specify)

Inspects or examines:

- Yarn in creel for conformance with warp pattern specifications

- Products for conformance with knitting specifications

Inprocess and finished products for:

Knitting defects, as:

- Holes
- Runs
- Uneven selvages
- Loose threads
- Mispicks
- Slub runs
- Torn threads
- Dropped stitches

Dyeing defects, as:

- Shaded parts
- Dye streaks
- Color variations

Looping defects

Seaming defects

Open seams

Twisted straps

Misplacement of:

- Pockets
- Loops
- Buttons

Stains or dirt on products

Assembly defects in:

Fit and hang of garment, as:

- Wrinkles
- Puckers
- Bulges

Positioning of:

- Fasteners
- Buttonholes
- Trimming and decorations

Loose buttons or fasteners

Other (specify)

Marks:

- Position for buttonholes and fasteners on garment

- Knitted garments along pattern for cutting operations

Defects for:

Rework, such as:

- Mending
- Darning

- Repositioning misplaced buttons, pockets, or fasteners

- Re-looping

- Cutting out of defects in knitting

- Other (specify)

WHAT THE WORKER DOES—Continued

Tests:

- Textile fibers and yarns for conformance with specifications for:
 - Tensile strength
 - Size
 - Twists per inch
- Solutions for specified:
 - Strength
 - Concentration
- Dyes for conformance with color standards
- Hosiery for:
 - Conformance with quality control standards
 - Obtaining data for establishing quality standards for new types or styles
 - Stretch characteristics of:
 - Welt
 - Knee
 - Ankle
 - Instep
 - Tensile strength at knee
 - Other (specify)

Measures:

- Width of material
- Garments to determine size
- Undyed hose to ascertain if size meets specifications
- Hosiery to determine size
- Other (specify)

Weighs:

- Chemicals and eyes following formula
- Dozen lots of knitted garments
- Other (specify)

Cuts:

- Notches in material to indicate length of front opening
- Defects from material or products
- Loose threads and excess material from products
- Connecting threads between material for garment openings
- Other (specify)

Hand:

- Reworks defects in knitted products
- Ties broken yarn ends together
- Presses pattern outline onto knitted garments parts to mark arm or neck openings

- Crochets decorative designs or trim on knotted products
- Blocks knitted headwear
- Folds products for packaging or boxing
- Stacks:
 - Folded garments between boards
 - Folded garments in trays
- Trucks materials or products within mill
- Sorts products according to size, grade, and style
- Other (specify)

Observes machine or equipment operation for:

- Conformance with operational specifications
- Yarn or thread breaks
- Operating malfunctions
- Need for adjustment
- Exhausted yarn packages
- Other (specify)

Assembles and installs metal chains that control knitting machine operations

- Studies specifications of new pattern and sample fabric
- Determines:
 - Arrangement of pattern plates on chain
 - Perforations in pattern plate requiring covering
- Selects pattern chain links according to pattern diagram
- Marks links according to sequence in chain
- Inserts connecting pins through holes in links to assemble chain
- Installs pattern chain and plates in machine
- Makes trial run on machine to insure knitting meets specifications
- Readjusts cams, gears, or control devices as required
- Other (specify)

Builds boards (forms)

- Measures and cuts canvas to cover wire frame
- Positions and tightens canvas over wire frame and sews it in place
- Sews binding tape at edges to strengthen board
- Other (specify)

WHAT THE WORKER DOES—Continued

Repairs looping machine:

- Replaces and alines worn, bent, or broken
 looper points and needles
- Replaces and adjusts:
 - Clipper blade
 - Trimmer blade
 - Changes pulleys and belts, as
 required
 - Other (specify)

Casts needle or thread guide assemblies:

- Selects size and type of mold specified
- Positions needle or thread guides in mold
 slots and closes mold
- Ladles molten lead into mold opening
- Removes assembly after lead solidifies
- Cuts excess lead from assembly and
 smooths rough edges
- Alines needle and thread guides, using
 gages and handtools
- Other (specify)

**Replaces, alines, and spaces needles or
points in bars:**

- Secures bar in jig or vise
- Loosens and removes clamping plate
 holding needles or points
- Removes and replaces defective needles
 or points
- Replaces and tightens clamping plate

- Alines and spaces needles and points,
 using gages and handtools
- Other (specify)

Records:

- Test results
- Production
- Batches of solutions or dyes mixed
- Chemicals used in making solutions
 and dyes
- Other (specify)
- Pushes trays of garments into autoclave
- Brushes chalk marks from garments
- Fastens end of yarn to empty warp
 beam
- Mixes chemical solutions or dyes according
 to formula
- Adds chemicals to obtain specified
 strength or color
- Counts, folds, and places hose in bag
 for dyeing
- Classifies hose to be redyed according
 to size, style, and length
- Fills orders of salesmen and customers for
 sample hose
- Inserts tissue paper liner in hose
- Pairs hose according to grade, color,
 size, and length
- Other (specify)

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | |
|--|--|
| Management <input type="checkbox"/> | Workers <input type="checkbox"/> |
| Supervisors <input type="checkbox"/> | Quality Control Personnel <input type="checkbox"/> |
| Other Supervisors <input type="checkbox"/> | Inspection Personnel <input type="checkbox"/> |
| Machine Operators <input type="checkbox"/> | Maintenance Personnel <input type="checkbox"/> |
| Machine Helpers <input type="checkbox"/> | Other (specify) <input type="checkbox"/> |

EDUCATION AND TRAINING

Record an "X" to indicate education requirements.

- | | |
|---|--|
| Elementary <input type="checkbox"/> | Vocational School <input type="checkbox"/> |
| High School <input type="checkbox"/> | Apprenticeship <input type="checkbox"/> |
| Junior College <input type="checkbox"/> | On-the-job-training <input type="checkbox"/> |
| Technical School <input type="checkbox"/> | Other (specify) <input type="checkbox"/> |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate type of machines and equipment, tools, and work aids used.

Type of machines/equipment:

- Automatic.....
- Continuous operating.....
- Hand operated.....
- High speed.....
- Manually controlled.....
- Multi-purpose.....
- Pattern controlled.....
- Semi-automatic.....
- Other (specify).....

Machines/equipment:

- Autoclave.....
- Beamer:
 - Cloth beamer.....
 - Warp beamer.....
- Bleaching-equipment.....
- Boarding machine.....
- Calendering machine.....
- Clipper machine.....
- Cloth finishing range.....
- Conveyor.....
- Crocheting machine.....
- Cutting machine:
 - Band cutting machine.....
 - Bias cutting machine.....
- Darning machine.....
- Detacking machine.....
- Doubling machine.....
- Dry cleaning machine.....
- Drying equipment:
 - Loop drier.....
 - Rotary drier.....
 - Suction drier.....
- Dyeing machine:
 - Paddle dyer.....
 - Rotary dyer.....
 - Skein yarn dyer.....
 - Tumbler dyer.....
- Dye-reeler-machine.....
- Embossing machine.....
- Embroidery machine.....
- Extractor.....
- Folding machine:
 - Swing folding machine.....
 - Tubular folding machine.....
- Hydraulic press.....
- Kier boiling equipment.....
- Knitting machine:
 - Circular knitting machine.....
 - Double-knit knitting machine.....

- Flat knitting machine.....
- Jacquard knitting machine.....
- Link and link knitting machine.....
- Warp knitting machine.....
- Looper machine:
 - Garment looper machine.....
 - Hosiery looper machine.....
- Mixing machine.....
- Drum mixer.....
- Napping machine.....
- Pressing machine:
 - Hydraulic pressing machine.....
 - Mangle.....
 - Roller pressing machine.....
 - Steam presser.....
- Rinsing machine.....
- Rolling machine.....
- Sewing machine.....
- Shearing machine.....
- Soaking machine.....
- Shrinking equipment.....
- Spot dyeing and winding machine.....
- Tentering machine.....
- Tenter frame.....
- Trimming machine.....
- Weight scales:
 - Balance scale.....
 - Platform scale.....
- Wool bleaching equipment.....
- Wool washing machine.....
- Wool tinting equipment.....
- Wringing machine.....
- Winding machine:
 - Bobbin winding machine.....
 - Rewinding machine.....
- Other (specify).....

Tools:

- Handtools:
 - Bodkins.....
 - Hooks.....
 - Knives.....
- Needles:
 - Latch needles.....
 - Latch-up needles.....
 - Crochet needles.....
- Pliers.....
- Scissors.....
- Screwdrivers.....
- Scribers.....
- Saws.....

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- | | | | |
|-------------------------------|--------------------------|-----------------------------|--------------------------|
| Wrenches | <input type="checkbox"/> | Crayons | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Pins | <input type="checkbox"/> |
| Power tools: | | Tags | <input type="checkbox"/> |
| Drills | <input type="checkbox"/> | Formulas | <input type="checkbox"/> |
| Grinders | <input type="checkbox"/> | Pencils | <input type="checkbox"/> |
| Soldering irons | <input type="checkbox"/> | Examining frames | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Laboratory equipment | <input type="checkbox"/> |
| Work aids: | | Measuring instruments: | |
| Production orders | <input type="checkbox"/> | Rulers | <input type="checkbox"/> |
| Knitting schedules | <input type="checkbox"/> | Tapes | <input type="checkbox"/> |
| Product specifications | <input type="checkbox"/> | Squares | <input type="checkbox"/> |
| Material specifications | <input type="checkbox"/> | Hydrometers | <input type="checkbox"/> |
| Pattern diagrams | <input type="checkbox"/> | Viscosimeters | <input type="checkbox"/> |
| Pattern charts | <input type="checkbox"/> | Evenness tester | <input type="checkbox"/> |
| Forms | <input type="checkbox"/> | Break tester | <input type="checkbox"/> |
| Head blocks | <input type="checkbox"/> | Twist counter machine | <input type="checkbox"/> |
| Folding boards | <input type="checkbox"/> | Space gages | <input type="checkbox"/> |
| Chalk | <input type="checkbox"/> | Micrometers | <input type="checkbox"/> |
| | | Feeler gages | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |

PRODUCTS

Record an "X" to indicate type of knit and knitted materials or goods produced.

- | | | | |
|---------------------------|--------------------------|----------------------------------|--------------------------|
| Type of knit: | | Wearing apparel: | |
| Circular knit | <input type="checkbox"/> | Boys' wearing apparel | <input type="checkbox"/> |
| Double knit | <input type="checkbox"/> | Children's wearing apparel | <input type="checkbox"/> |
| Elastic knit | <input type="checkbox"/> | Girls' wearing apparel | <input type="checkbox"/> |
| Single knit | <input type="checkbox"/> | Infants' wearing apparel | <input type="checkbox"/> |
| Stretch knit | <input type="checkbox"/> | Men's wearing apparel | <input type="checkbox"/> |
| Warp knit | <input type="checkbox"/> | Misses' wearing apparel | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Women's wearing apparel | <input type="checkbox"/> |
| Knitted materials: | | Other (specify) | <input type="checkbox"/> |
| Cloth | <input type="checkbox"/> | Legwear knits: | |
| Jersey cloth | <input type="checkbox"/> | Full fashion | <input type="checkbox"/> |
| Fabrics: | | Full length | <input type="checkbox"/> |
| Girdle blank fabric | <input type="checkbox"/> | Knee length | <input type="checkbox"/> |
| Pile fabric | <input type="checkbox"/> | Seamless | <input type="checkbox"/> |
| Tricot fabric | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Lace | <input type="checkbox"/> | Anklets | <input type="checkbox"/> |
| Netting | <input type="checkbox"/> | Hose | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Panty hose | <input type="checkbox"/> |
| Knit goods: | | Hosiery | <input type="checkbox"/> |
| Bags | <input type="checkbox"/> | Socks | <input type="checkbox"/> |
| Bagging: | | Stockings | <input type="checkbox"/> |
| Meat bagging | <input type="checkbox"/> | Stocking slippers | <input type="checkbox"/> |
| Stockinette | <input type="checkbox"/> | Tights | <input type="checkbox"/> |
| Curtains | <input type="checkbox"/> | Leotards | <input type="checkbox"/> |
| Dishcloths | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Shoe linings | <input type="checkbox"/> | Outerwear knits: | |
| Towels | <input type="checkbox"/> | Bathing suits | <input type="checkbox"/> |
| Washcloths | <input type="checkbox"/> | | |

PRODUCTS—Continued

- | | | | |
|----------------------|--------------------------|---------------------------|--------------------------|
| Bathrobes | <input type="checkbox"/> | Skirts | <input type="checkbox"/> |
| Beachwear | <input type="checkbox"/> | Slacks | <input type="checkbox"/> |
| Bedjackets | <input type="checkbox"/> | Suits | <input type="checkbox"/> |
| Blouses | <input type="checkbox"/> | Pants suits | <input type="checkbox"/> |
| Body stockings | <input type="checkbox"/> | Sweaters | <input type="checkbox"/> |
| Collar sets | <input type="checkbox"/> | Sweater sets | <input type="checkbox"/> |
| Cuff sets | <input type="checkbox"/> | Wristlets | <input type="checkbox"/> |
| Dresses | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Gloves | <input type="checkbox"/> | | |
| Hats | <input type="checkbox"/> | Underwear: | |
| Headwear | <input type="checkbox"/> | Drawers | <input type="checkbox"/> |
| Housecoats | <input type="checkbox"/> | Foundation garments | <input type="checkbox"/> |
| Jerseys | <input type="checkbox"/> | Girdles | <input type="checkbox"/> |
| Mittens | <input type="checkbox"/> | Panties | <input type="checkbox"/> |
| Mufflers | <input type="checkbox"/> | Slips | <input type="checkbox"/> |
| Neckties | <input type="checkbox"/> | Step-ins | <input type="checkbox"/> |
| Scarfs | <input type="checkbox"/> | Shorts | <input type="checkbox"/> |
| Shawls | <input type="checkbox"/> | Jockey shorts | <input type="checkbox"/> |
| Shirts | <input type="checkbox"/> | Undershirts | <input type="checkbox"/> |
| Shoulderettes | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

- | | | | |
|-------------------------------|--------------------------|----------------------------|--------------------------|
| Agriculture | <input type="checkbox"/> | Financial | <input type="checkbox"/> |
| Commercial | <input type="checkbox"/> | Government Service | <input type="checkbox"/> |
| Business Service | <input type="checkbox"/> | Industrial | <input type="checkbox"/> |
| Food and Beverage | <input type="checkbox"/> | Insurance | <input type="checkbox"/> |
| Lodging Service | <input type="checkbox"/> | Legal | <input type="checkbox"/> |
| Personal Service | <input type="checkbox"/> | Library | <input type="checkbox"/> |
| Printing and Publishing | <input type="checkbox"/> | Medical Service | <input type="checkbox"/> |
| Repair Service | <input type="checkbox"/> | Military | <input type="checkbox"/> |
| Sales | <input type="checkbox"/> | Nonprofit | <input type="checkbox"/> |
| Communications | <input type="checkbox"/> | Office Service | <input type="checkbox"/> |
| Conservation | <input type="checkbox"/> | Recreation | <input type="checkbox"/> |
| Construction | <input type="checkbox"/> | Social Service | <input type="checkbox"/> |
| Correctional | <input type="checkbox"/> | Subsurface and Space | <input type="checkbox"/> |
| Educational | <input type="checkbox"/> | Transportation | <input type="checkbox"/> |
| Entertainment | <input type="checkbox"/> | Utilities | <input type="checkbox"/> |
| Exhibition Center | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

LIBRARY WORK

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates activities concerned with:

Operations of a:

- Public Library system
- Branch library
- Educational institution library or library system
- Library department
- Special library
- Providing patrons with library services
- Selecting materials for library collections
- Acquisition of selected materials
- Cataloging and classifying acquisitions
- Designing and implementing library programs and special services
- Supervising, training, and guiding of library personnel
- Recruiting, selecting, hiring, and placement of personnel for library
- Analyzing library or system operations and administrative policy and procedures
- Public and community relations
- Preparing and formatting data for computer input
- Day to day library operations
- Other (specify)

- Prepares, justifies, and submits budget for library or library system
- Participates in library building and program planning activities
- Forecasts anticipated needs for expansion of library programs and services
- Controls budgetary expenditures within allotment
- Addresses meetings of library, civic, community, or educational organizations
- Formulates and enforces personnel policy
- Interprets established library policy to educational or library personnel
- Trains library personnel in performing assigned duties
- Gives directions to library personnel regarding technical aspects of duties
- Insures that work performed is carried out according to directions
- Other (specify)

Administrators:

- Library policy and procedures established by trustees or governing board
- Special projects and experiments in new techniques of providing library services
- Services provided by library or library system
- Established program of providing library services
- Library personnel services in accordance with prescribed regulations
- Other (specify)

Plans, develops, and organizes or arranges:

- Special library projects involving promotion of library and outreach services
- Special library programs and services for handicapped or disadvantaged
- Public and community relations programs

WHAT THE WORKER DOES—Continued

- Technical processes relating to acquisition of materials for library
- Layout of physical facilities for library materials and special services
- Systems and procedures for recording, housing, and maintaining library materials
- Library collections according to subject matter or field of interest
- Library displays or exhibits for stimulating interest of patrons
- Recruiting programs and placement of professional library staff
- Input data for implementing automated library programs or systems
- Other (specify)
- Consults or confers with:
- Trustees, governing board, and civic groups on methods for improving:
- Library administration
- Library organizations
- Services for patrons
- Faculty, educational department heads on present and future needs within specified subject area
- School administrative personnel to coordinate cooperation between school and library
- Teachers, parents, and civic groups concerning special programs and activities of library
- Administrative library personnel to devise methods for increasing effectiveness and efficiency of library services
- Coordinators for schools and libraries to devise most effective methods of serving students
- Library department heads and staff concerning acquisitions of materials
- Administrative library personnel to give information on availability of financial grants
- Other (specify)
- Analyzes:
- Budgetary requests and cost estimates for materials and personnel
- Administrative policies, procedures, and regulations
- Proposed building, expansion, and extension plans of library or system
- Recommendations submitted by library or other professional personnel
- Lists of materials selected for acquisition
- Proposed and planned programs for completeness and conformance with policy and procedures
- Data on reading habits to determine specific needs of library patrons
- Other (specify)
- Advises:
- Librarians on material selection for particular needs or uses
- Personnel planning on technical problems and program content
- Library patrons on services provided by library staff
- Branch and central library personnel of school activities having effect on library services
- Administrative personnel on eligibility requirements for obtaining financial grants
- Other (specify)
- Compiles:
- Statistics on acquisition of library materials
- Statistical data, population and community growth rates
- Bibliographies and writings for publication
- Lists of library materials for specific purposes or according to field of interest
- Catalog cards for identification of materials and intergration in library catalog
- Information required for preparation of catalog cards
- Accession lists and records
- Directories of information on medical:
- Hospitals and facilities
- Teaching institutions
- Licensing requirements
- Annotations
- Data on department activities and expenditures
- Other (specify)
- Reads or reviews:
- New publications to recommend selection of materials

WHAT THE WORKER DOES—Continued

- Books, articles, and journals concerning new developments and methods used in education
- Issues of periodicals for making decisions regarding retention or disposal
- Lost material data to determine need of replacement
- Materials for purposes of cataloging and classifying
- Other (specify)
- Conducts:
 - Orientation classes in use of library resources and materials
 - Staff meeting on activities of library and commenting on proposals
 - Surveys of private or other collections for possible library acquisition
 - Classes on tours of library to acquaint students with library facilities and services
 - Searches of subject matter material for faculty personnel
 - Interlibrary loan transactions
 - Other (specify)
- Instructs individuals or readers in:
 - Use of card catalog and reference files
 - Compilation and use of bibliographies
 - Research methodology
 - Use of reference materials
 - Operation and maintenance of machines and other equipment
 - Use of special equipment designed for blind or handicapped
 - Library policies and procedures
 - Other (specify)
- Prepares:
 - Budgetary requests for library department or branch
 - Brief summaries on materials for use in cataloging and classifying
 - Reports on library activities and special services provided
 - Reference and bibliographic lists for use by professional or staff personnel
 - Special services programs for presentation
 - Evaluations of library or library system from collected data
 - Abstracts from library materials
- Replies to:
 - Mail requests for information or assistance
 - Complaints of patrons concerning library services

- Selection lists of materials to be acquired
- Reports of field investigations, personal contacts, and monies collected
- Patient medical records and case histories
- Other (specify)
- Recommends:
 - Specific publications or materials for acquisition
 - Acquisition of private collections from individuals or organizations
 - Reclassification of library jobs based on task evaluation
 - Methods of improving organization and administration of library or library system
 - Actions to be taken for obtaining eligibility for financial grants or assistance
 - Methods and procedures for improving effectiveness of library
 - Promotions of library personnel
 - Disposition of materials to department heads
 - Methods of enlarging book collections
 - Other (specify)
- Provides:
 - Patrons with reader advisory services
 - Patrons with reference services
 - Inmates, patients, or staff of institutions with library services
 - Handicapped patrons with reading aids and equipment, or special type of library materials
 - Library department heads with guidance and supervision
 - Patrons with information on library activities, policies, rules, and services
 - Doctors with specified medical bibliographies
 - Community or civic groups with special program presentations
 - Other (specify)
- Selects:
 - Subject matter materials in cooperation with faculty
 - Vendors providing materials considering such factors as discount allowances and delivery dates

WHAT THE WORKER DOES—Continued

- | | | | | |
|---|--------------------------|---------|--|--------------------------|
| Materials for library or special library collections | <input type="checkbox"/> | Types: | Orders for materials and supplies | <input type="checkbox"/> |
| Classification numbers to be assigned new materials | <input type="checkbox"/> | | Catalog cards, shelf lists, and other library materials | <input type="checkbox"/> |
| Materials to be repaired, replaced, or discarded according to condition and value | <input type="checkbox"/> | | Medical case histories and patient records from data supplied by doctors | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Copies. | Classification numbers on books | <input type="checkbox"/> |
| Evaluates: | | | Classification numbers onto shelf cards | <input type="checkbox"/> |
| Materials for technical, informational, or esthetic qualities | <input type="checkbox"/> | | Receives material and compares them with order lists | <input type="checkbox"/> |
| Special equipment according to intended use, quality, and price | <input type="checkbox"/> | | Replaces books and other library materials on shelves or in files | <input type="checkbox"/> |
| Materials in specific collections for need of updating or revising | <input type="checkbox"/> | | Charges out loan materials to borrowers and records lending data | <input type="checkbox"/> |
| Performance of library personnel | <input type="checkbox"/> | | Issues library, identification, or other cards to borrowers | <input type="checkbox"/> |
| Educational background and experience of applicants | <input type="checkbox"/> | | Collects fines and overdue materials from borrowers | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | | Receives and records payment of fines and for lost materials | <input type="checkbox"/> |
| Supervises and coordinates activities of workers in department | <input type="checkbox"/> | | Keeps serial and periodical check-in files | <input type="checkbox"/> |
| Assigns workers to specific duties | <input type="checkbox"/> | | Prepares bills and notices for overdue materials | <input type="checkbox"/> |
| Gives work directions to technical or clerical personnel | <input type="checkbox"/> | Files: | Catalog cards | <input type="checkbox"/> |
| Insures that work meets quality and standards of library | <input type="checkbox"/> | | Material orders and removes orders from files when materials are received | <input type="checkbox"/> |
| Writes book reviews on materials and new acquisitions | <input type="checkbox"/> | | Stamps or marks library materials with ownership identification | <input type="checkbox"/> |
| Compares list of selected materials with catalog for avoiding duplications | <input type="checkbox"/> | | Inventories materials for determining replacement requirements | <input type="checkbox"/> |
| Circulates list of selected materials for comment by staff | <input type="checkbox"/> | | Tracks returned books to stacks for shelving | <input type="checkbox"/> |
| Trains library personnel in use of specialized equipment | <input type="checkbox"/> | | Monitors library exits for insuring borrowed materials have been charged out | <input type="checkbox"/> |
| Translates foreign language material | <input type="checkbox"/> | | Traces patrons having library materials | <input type="checkbox"/> |
| Appraises rare books or private collections | <input type="checkbox"/> | | Drives bookmobile to specified locations | <input type="checkbox"/> |
| | | | Other (specify) | <input type="checkbox"/> |

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | | | |
|----------------------------------|--------------------------|---------------------------|--------------------------|
| Board of Trustees | <input type="checkbox"/> | Students | <input type="checkbox"/> |
| Board of Directors | <input type="checkbox"/> | Patients | <input type="checkbox"/> |
| Governing Body | <input type="checkbox"/> | Inmates | <input type="checkbox"/> |
| Institution Administrators | <input type="checkbox"/> | Patrons | <input type="checkbox"/> |
| Library Director | <input type="checkbox"/> | Blind Persons | <input type="checkbox"/> |
| Other Librarians | <input type="checkbox"/> | Handicapped Persons | <input type="checkbox"/> |
| Government Personnel | <input type="checkbox"/> | Faculty | <input type="checkbox"/> |
| Community Groups | <input type="checkbox"/> | Library Employees | <input type="checkbox"/> |
| Civic Groups | <input type="checkbox"/> | Doctors | <input type="checkbox"/> |

COMMUNICATION RESPONSIBILITIES—Continued

- | | | | |
|--|--------------------------|-------------------------|--------------------------|
| Business People | <input type="checkbox"/> | Collectors | <input type="checkbox"/> |
| Medical Personnel | <input type="checkbox"/> | Children | <input type="checkbox"/> |
| Business Services Personnel | <input type="checkbox"/> | By Telephone | <input type="checkbox"/> |
| Maintenance and Repair Personnel | <input type="checkbox"/> | By Correspondence | <input type="checkbox"/> |
| Association Personnel | <input type="checkbox"/> | By Teletype | <input type="checkbox"/> |
| Contributors | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

EDUCATION AND TRAINING

Record an "X" to indicate education or training required.

- | | | | |
|----------------------|--------------------------|--------------------------|--------------------------|
| Elementary | <input type="checkbox"/> | Technical | <input type="checkbox"/> |
| High School | <input type="checkbox"/> | Post Graduate Work | <input type="checkbox"/> |
| Junior College | <input type="checkbox"/> | Doctorate Work | <input type="checkbox"/> |
| College | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

DEGREE

Record an "X" to indicate degree.

- | | | | |
|-----------|--------------------------|-----------------------|--------------------------|
| AA | <input type="checkbox"/> | MS | <input type="checkbox"/> |
| BA | <input type="checkbox"/> | PhD | <input type="checkbox"/> |
| BS | <input type="checkbox"/> | DLS | <input type="checkbox"/> |
| MA | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| MLS | <input type="checkbox"/> | | |

DEGREE MAJOR

Record an "X" to indicate degree major.

- | | | | |
|-------------------------------------|--------------------------|-----------------------------------|--------------------------|
| Librarianship | <input type="checkbox"/> | Medical Records Librarian | <input type="checkbox"/> |
| Library Science | <input type="checkbox"/> | Medical Records Technician | <input type="checkbox"/> |
| Medical Librarianship | <input type="checkbox"/> | Medical Records Transcriber | <input type="checkbox"/> |
| Information Science | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Librarian Technical Assistant | <input type="checkbox"/> | | |

SUBJECTS AND COURSES

Record an "X" to indicate subjects or courses that develop skills for the occupation.

- | | | | |
|--|--------------------------|-----------------------|--------------------------|
| Related Subjects and Courses: | | Chemistry | <input type="checkbox"/> |
| Reading and Composition | <input type="checkbox"/> | Physics | <input type="checkbox"/> |
| World Literature | <input type="checkbox"/> | Anatomy | <input type="checkbox"/> |
| English Literature | <input type="checkbox"/> | Physiology | <input type="checkbox"/> |
| American Literature | <input type="checkbox"/> | History | <input type="checkbox"/> |
| Introduction to Western Civilization | <input type="checkbox"/> | Language: | |
| Introduction to Sociology | <input type="checkbox"/> | French | <input type="checkbox"/> |
| Public Speaking | <input type="checkbox"/> | German | <input type="checkbox"/> |
| Survey of Art History | <input type="checkbox"/> | Spanish | <input type="checkbox"/> |
| Business Law | <input type="checkbox"/> | Italian | <input type="checkbox"/> |
| Principles of Economics | <input type="checkbox"/> | Latin | <input type="checkbox"/> |
| Report Writing | <input type="checkbox"/> | Russian | <input type="checkbox"/> |
| Oral Communications | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| General Psychology | <input type="checkbox"/> | | |
| Principles of Data Processing | <input type="checkbox"/> | Hygiene | <input type="checkbox"/> |
| Speech | <input type="checkbox"/> | Psychology | <input type="checkbox"/> |

SUBJECTS AND COURSES—Continued

- | | | | |
|---|--------------------------|--|--------------------------|
| Typing | <input type="checkbox"/> | Basic References | <input type="checkbox"/> |
| Medical Terminology | <input type="checkbox"/> | Nonbook Materials | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | School Library Administration | <input type="checkbox"/> |
| Librarianship: | | Advanced Problems in Technical
Services | <input type="checkbox"/> |
| Introduction to Librarianship | <input type="checkbox"/> | Forms and Movements of Publication | <input type="checkbox"/> |
| Reading Guidance for Young People | <input type="checkbox"/> | Development of the Book | <input type="checkbox"/> |
| Reading Guidance for Children | <input type="checkbox"/> | The Behavioral Study of Scientific
Information Flow | <input type="checkbox"/> |
| History of Books and Printing | <input type="checkbox"/> | Foreign National Bibliography | <input type="checkbox"/> |
| Reference Sources and Services | <input type="checkbox"/> | Science and Technical Literature | <input type="checkbox"/> |
| Introductory Cataloging and
Classification | <input type="checkbox"/> | Analysis of Contents | <input type="checkbox"/> |
| Administration of Libraries | <input type="checkbox"/> | Introduction to Information Sciences | <input type="checkbox"/> |
| Cataloging and Classification | <input type="checkbox"/> | Current Developments in Information
Sciences | <input type="checkbox"/> |
| Bibliography of the Humanities | <input type="checkbox"/> | Seminar in Mechanized Documentation
Techniques | <input type="checkbox"/> |
| Bibliography of the Social Sciences | <input type="checkbox"/> | Seminar in Automatic Data Retrieval | <input type="checkbox"/> |
| Book Selection | <input type="checkbox"/> | Measures of Retrieval Effectiveness | <input type="checkbox"/> |
| The Librarian's Reading | <input type="checkbox"/> | Law Librarianship | <input type="checkbox"/> |
| Intellectual Freedom and Censorship | <input type="checkbox"/> | Introduction to Information Systems
Design | <input type="checkbox"/> |
| Reading Guidance for Adults | <input type="checkbox"/> | Library Systems Analysis | <input type="checkbox"/> |
| Bibliography of the: | | Data Processing for Libraries | <input type="checkbox"/> |
| Biomedical Sciences | <input type="checkbox"/> | Survey of Library Automation | <input type="checkbox"/> |
| Physical Sciences | <input type="checkbox"/> | The Librarian and the Society | <input type="checkbox"/> |
| Basic Aspects of Law Librarianship | <input type="checkbox"/> | Book Collection for University
Libraries | <input type="checkbox"/> |
| Government Publications | <input type="checkbox"/> | School Libraries | <input type="checkbox"/> |
| Library Guidance for Teachers | <input type="checkbox"/> | College and University Libraries | <input type="checkbox"/> |
| The American Public Library | <input type="checkbox"/> | Public Library Collections and Services | <input type="checkbox"/> |
| College and University Libraries | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| The School Library as a Material
Center | <input type="checkbox"/> | | |
| Library Services to: | | Library Technical Assistant: | |
| Children | <input type="checkbox"/> | Library Services | <input type="checkbox"/> |
| Young People | <input type="checkbox"/> | Library Resources | <input type="checkbox"/> |
| Seminar in School Libraries | <input type="checkbox"/> | Ordering Practices | <input type="checkbox"/> |
| Personnel Administration in Libraries | <input type="checkbox"/> | Circulation Procedures | <input type="checkbox"/> |
| The Library in the Changing Social
Scene | <input type="checkbox"/> | Cataloging Techniques | <input type="checkbox"/> |
| Technical Libraries | <input type="checkbox"/> | Communications Media | <input type="checkbox"/> |
| Contemporary Library Theory and
Practice | <input type="checkbox"/> | Book Binding and Book Repair | <input type="checkbox"/> |
| Information Storage and Retrieval | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Data Processing in Library Technical
Services | <input type="checkbox"/> | | |
| Automation of Library Processes and
Procedures | <input type="checkbox"/> | Medical Records Technician: | |
| Reprography and Graphic Systems | <input type="checkbox"/> | Medical Records Technology | <input type="checkbox"/> |
| Directed Research | <input type="checkbox"/> | Medical Records Directed Practice | <input type="checkbox"/> |
| History of Libraries | <input type="checkbox"/> | Seminar in Medical Records | <input type="checkbox"/> |
| Advanced Bibliography | <input type="checkbox"/> | Introduction to Medical Records | <input type="checkbox"/> |
| Medical Librarianship | <input type="checkbox"/> | Beginning Medical Records Science | <input type="checkbox"/> |
| Special Problems in Technical Services | <input type="checkbox"/> | Medical Records Science | <input type="checkbox"/> |
| Research Methods in Library Sciences | <input type="checkbox"/> | Department Supervisor | <input type="checkbox"/> |
| Selection of Materials | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Children's Books for School
Libraries | <input type="checkbox"/> | | |
| Adolescent Books for School Libraries | <input type="checkbox"/> | | |

ASSOCIATIONS AND ORGANIZATIONS

Record an "X" to indicate affiliation.

- | | |
|---|---|
| <p>American Association of Law Libraries <input type="checkbox"/></p> <p>American Library Association:</p> <p style="padding-left: 20px;">American Association of School Libraries <input type="checkbox"/></p> <p style="padding-left: 20px;">American Association of State Libraries <input type="checkbox"/></p> <p style="padding-left: 20px;">Association of College and Research
Libraries <input type="checkbox"/></p> <p style="padding-left: 20px;">Association of Hospital and Institutional
Libraries <input type="checkbox"/></p> <p style="padding-left: 20px;">Public Library Association <input type="checkbox"/></p> <p>American Merchant Marine Library
Association <input type="checkbox"/></p> <p>American Society for Informational
Science <input type="checkbox"/></p> <p>American Theological Library
Association <input type="checkbox"/></p> <p>Association of American Library
Schools <input type="checkbox"/></p> | <p>Association of Cooperative Library
Organizations <input type="checkbox"/></p> <p style="padding-left: 20px;">Association of Jewish Libraries <input type="checkbox"/></p> <p style="padding-left: 20px;">Association of Research Libraries <input type="checkbox"/></p> <p style="padding-left: 20px;">Bibliographia Society of America <input type="checkbox"/></p> <p style="padding-left: 20px;">Catholic Library Association <input type="checkbox"/></p> <p style="padding-left: 20px;">Church and Synagogue Library
Association <input type="checkbox"/></p> <p style="padding-left: 20px;">Educational Film Library Association <input type="checkbox"/></p> <p style="padding-left: 20px;">Film Library Information Council <input type="checkbox"/></p> <p style="padding-left: 20px;">Medical Library Association <input type="checkbox"/></p> <p style="padding-left: 20px;">Music Library Association <input type="checkbox"/></p> <p style="padding-left: 20px;">Special Libraries Association <input type="checkbox"/></p> <p style="padding-left: 20px;">Theatre Library Association <input type="checkbox"/></p> <p style="padding-left: 20px;">Other (specify) <input type="checkbox"/></p> |
|---|---|

LIBRARIES AND LIBRARY DEPARTMENTS

Record an "X" to indicate type of library or department.

- | | |
|--|--|
| <p>Libraries:</p> <p>Federal:</p> <p style="padding-left: 20px;">Library of Congress <input type="checkbox"/></p> <p style="padding-left: 20px;">National Library of Medicine <input type="checkbox"/></p> <p style="padding-left: 40px;">National Medical Audio-visual
Center <input type="checkbox"/></p> <p style="padding-left: 20px;">National Agricultural Library <input type="checkbox"/></p> <p>Library of the Department of:</p> <p style="padding-left: 20px;">Army <input type="checkbox"/></p> <p style="padding-left: 20px;">Navy <input type="checkbox"/></p> <p style="padding-left: 20px;">Airforce <input type="checkbox"/></p> <p style="padding-left: 20px;">Interior <input type="checkbox"/></p> <p style="padding-left: 20px;">Housing and Urban Development <input type="checkbox"/></p> <p style="padding-left: 20px;">Transportation <input type="checkbox"/></p> <p style="padding-left: 20px;">Other (specify) <input type="checkbox"/></p> <p>State Library <input type="checkbox"/></p> <p>County:</p> <p style="padding-left: 20px;">Central Library <input type="checkbox"/></p> <p style="padding-left: 20px;">Branch Library <input type="checkbox"/></p> <p>City:</p> <p style="padding-left: 20px;">Central Library <input type="checkbox"/></p> <p style="padding-left: 20px;">Branch Library <input type="checkbox"/></p> <p style="padding-left: 20px;">Municipal Reference Library <input type="checkbox"/></p> <p>College Library <input type="checkbox"/></p> <p>University Library <input type="checkbox"/></p> <p>Hospital Library <input type="checkbox"/></p> <p>Junior College Library <input type="checkbox"/></p> <p>Other (specify) <input type="checkbox"/></p> | <p>Special Libraries:</p> <p style="padding-left: 20px;">Information Sciences Library <input type="checkbox"/></p> <p style="padding-left: 20px;">Institutional Library <input type="checkbox"/></p> <p style="padding-left: 20px;">Industrial Library <input type="checkbox"/></p> <p style="padding-left: 20px;">Medical Association Library <input type="checkbox"/></p> <p style="padding-left: 20px;">Law Library <input type="checkbox"/></p> <p style="padding-left: 20px;">Aerospace Library <input type="checkbox"/></p> <p style="padding-left: 20px;">Engineering and Science Library <input type="checkbox"/></p> <p style="padding-left: 20px;">Library for the Blind <input type="checkbox"/></p> <p style="padding-left: 20px;">Library for the Handicapped <input type="checkbox"/></p> <p style="padding-left: 20px;">Other (specify) <input type="checkbox"/></p> <p>Library Department:</p> <p style="padding-left: 20px;">Art <input type="checkbox"/></p> <p style="padding-left: 20px;">Research <input type="checkbox"/></p> <p style="padding-left: 20px;">Architecture and Urban Planning <input type="checkbox"/></p> <p style="padding-left: 20px;">Business Administration <input type="checkbox"/></p> <p style="padding-left: 20px;">Biomedical <input type="checkbox"/></p> <p style="padding-left: 20px;">Chemistry <input type="checkbox"/></p> <p style="padding-left: 20px;">Education and Psychology <input type="checkbox"/></p> <p style="padding-left: 20px;">Engineering and Mathematical Sciences <input type="checkbox"/></p> <p style="padding-left: 20px;">English <input type="checkbox"/></p> <p style="padding-left: 20px;">Law <input type="checkbox"/></p> <p style="padding-left: 20px;">Map <input type="checkbox"/></p> <p style="padding-left: 20px;">Document <input type="checkbox"/></p> <p style="padding-left: 20px;">Music <input type="checkbox"/></p> <p style="padding-left: 20px;">Oriental <input type="checkbox"/></p> <p style="padding-left: 20px;">Physics <input type="checkbox"/></p> <p style="padding-left: 20px;">Theater Arts <input type="checkbox"/></p> |
|--|--|

SUBJECTS AND COURSES—Continued

Sciences and Technology	<input type="checkbox"/>	Literature	<input type="checkbox"/>
Social Sciences	<input type="checkbox"/>	Serials	<input type="checkbox"/>
Philosophy and Religion	<input type="checkbox"/>	Cataloging	<input type="checkbox"/>
Biological Sciences	<input type="checkbox"/>	Acquisitions	<input type="checkbox"/>
Education	<input type="checkbox"/>	Reserve (limited loan)	<input type="checkbox"/>
Children's	<input type="checkbox"/>	Audiovisual	<input type="checkbox"/>
Young Adults	<input type="checkbox"/>	Bookbinding and Repair	<input type="checkbox"/>
Fiction	<input type="checkbox"/>	Circulation	<input type="checkbox"/>
Extension	<input type="checkbox"/>	Reference	<input type="checkbox"/>
Humanities	<input type="checkbox"/>	General Reference	<input type="checkbox"/>
Foreign Language	<input type="checkbox"/>	Special Collections	<input type="checkbox"/>
History	<input type="checkbox"/>	Technical Services	<input type="checkbox"/>
Genealogy	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

Machines and equipment:	<input type="checkbox"/>	Copying machines	<input type="checkbox"/>
Information retrieval systems:		Braille:	
Computer	<input type="checkbox"/>	Typers	<input type="checkbox"/>
Printer	<input type="checkbox"/>	Writers	<input type="checkbox"/>
Terminal	<input type="checkbox"/>	Computerized book circulation systems	<input type="checkbox"/>
Viewers	<input type="checkbox"/>	Call number stamping machines	<input type="checkbox"/>
MEDLARS (Medical library automatic retrieval system)	<input type="checkbox"/>	Dictaphones	<input type="checkbox"/>
Microform machines:		Photostat machines	<input type="checkbox"/>
Readers:		Microfilm camera book charging equipment	<input type="checkbox"/>
Microfilm	<input type="checkbox"/>	Adding machines	<input type="checkbox"/>
Microfiche	<input type="checkbox"/>	Calculators	<input type="checkbox"/>
Microcard	<input type="checkbox"/>	Addressographs	<input type="checkbox"/>
Printers:		Hectograph machines	<input type="checkbox"/>
Microfilm	<input type="checkbox"/>	Mimeograph machines	<input type="checkbox"/>
Microfiche	<input type="checkbox"/>	Cash Registers	<input type="checkbox"/>
Microcard	<input type="checkbox"/>	Tape perforator machines	<input type="checkbox"/>
Projectors:		Keypunch machines	<input type="checkbox"/>
Film strip	<input type="checkbox"/>	Typewriters:	
Motion picture	<input type="checkbox"/>	Tape driven	<input type="checkbox"/>
Opaque	<input type="checkbox"/>	Manual	<input type="checkbox"/>
Slide	<input type="checkbox"/>	Magnetic Tape Selectric	<input type="checkbox"/>
Videotape	<input type="checkbox"/>	Electronic film inspecting equipment	<input type="checkbox"/>
Overhead	<input type="checkbox"/>	Electric rotary card files	<input type="checkbox"/>
Transparency	<input type="checkbox"/>	Illuminated inspection tables	<input type="checkbox"/>
Audio equipment:		Page magnifiers	<input type="checkbox"/>
Recorders:		Bookbinding Machines and Equipment:	
Tape	<input type="checkbox"/>	Collators	<input type="checkbox"/>
Cassette	<input type="checkbox"/>	Folding machines	<input type="checkbox"/>
Players:		Sewing machines	<input type="checkbox"/>
Tape	<input type="checkbox"/>	Precision drill presses	<input type="checkbox"/>
Cassette	<input type="checkbox"/>	Paper drills	<input type="checkbox"/>
Phonographs:		Stapling machine	<input type="checkbox"/>
Remote control	<input type="checkbox"/>	Stitching machine	<input type="checkbox"/>
Speed control	<input type="checkbox"/>	Proof press	<input type="checkbox"/>
Audio duplicating machines:		Offset:	
Open reel tape duplicator	<input type="checkbox"/>	Plate making equipment	<input type="checkbox"/>
Cassette duplicator	<input type="checkbox"/>	Lithographic printing presses	<input type="checkbox"/>

LIBRARIES AND LIBRARY DEPARTMENTS—Continued

- | | | | |
|--|--------------------------|---------------------------------------|--------------------------|
| Poster printing presses | <input type="checkbox"/> | Borrower cards | <input type="checkbox"/> |
| Automatic pocket pasting machine | <input type="checkbox"/> | Courtesy cards | <input type="checkbox"/> |
| Teletypewriter book exchange network | <input type="checkbox"/> | Catalog | <input type="checkbox"/> |
| Televisions | <input type="checkbox"/> | Date | <input type="checkbox"/> |
| Closed circuit television systems | <input type="checkbox"/> | Overdue | <input type="checkbox"/> |
| Bookmobiles | <input type="checkbox"/> | Reserve | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Hold | <input type="checkbox"/> |
| | | Shelf List | <input type="checkbox"/> |
| Tools: | | Cataloging and processing kits | <input type="checkbox"/> |
| Handtools: | | Book jacket covers | <input type="checkbox"/> |
| Rubber stamps | <input type="checkbox"/> | Date slips | <input type="checkbox"/> |
| Date stamps | <input type="checkbox"/> | Atlases | <input type="checkbox"/> |
| Marking pens | <input type="checkbox"/> | Dictionaries | <input type="checkbox"/> |
| Scissors | <input type="checkbox"/> | Encyclopedias | <input type="checkbox"/> |
| Staplers | <input type="checkbox"/> | Indexing: | |
| Card sorters | <input type="checkbox"/> | Guides | <input type="checkbox"/> |
| Tapewriters | <input type="checkbox"/> | Slips | <input type="checkbox"/> |
| Book repair knives | <input type="checkbox"/> | Interlibrary loan request forms | <input type="checkbox"/> |
| Film splicers | <input type="checkbox"/> | Ink pads | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Library: | |
| | | Notices | <input type="checkbox"/> |
| Power tools: | | Paste | <input type="checkbox"/> |
| Electric pencils | <input type="checkbox"/> | Mending: | |
| Electric staplers | <input type="checkbox"/> | Tape | <input type="checkbox"/> |
| Electric pencil sharpeners | <input type="checkbox"/> | Kits | <input type="checkbox"/> |
| Electric speedy stitchers | <input type="checkbox"/> | Projector screens | <input type="checkbox"/> |
| Electric erasers | <input type="checkbox"/> | Prismglasses | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Published indices | <input type="checkbox"/> |
| Work Aids: | | Publishers: | |
| Accession books | <input type="checkbox"/> | Catalogs | <input type="checkbox"/> |
| Adhesives and glues | <input type="checkbox"/> | Book reviews | <input type="checkbox"/> |
| Binders: | | Labels: | |
| Cassette | <input type="checkbox"/> | Self adhesive | <input type="checkbox"/> |
| Lock | <input type="checkbox"/> | Call number | <input type="checkbox"/> |
| Magazine | <input type="checkbox"/> | Classification: | <input type="checkbox"/> |
| Periodical | <input type="checkbox"/> | Dewey decimal | <input type="checkbox"/> |
| Pamphlet | <input type="checkbox"/> | Library of Congress | <input type="checkbox"/> |
| Bibliographies and indexes | <input type="checkbox"/> | Book sprays | <input type="checkbox"/> |
| Book: | <input type="checkbox"/> | Library furniture | <input type="checkbox"/> |
| Carts | <input type="checkbox"/> | Cabinets | <input type="checkbox"/> |
| Covers | <input type="checkbox"/> | Files: | |
| Marking boards | <input type="checkbox"/> | Princeton files | <input type="checkbox"/> |
| Marking kits | <input type="checkbox"/> | Catalog files | <input type="checkbox"/> |
| Marking inks | <input type="checkbox"/> | Stack ladders | <input type="checkbox"/> |
| Ordering forms | <input type="checkbox"/> | Step stools | <input type="checkbox"/> |
| Pockets | <input type="checkbox"/> | Wet book hand presses | <input type="checkbox"/> |
| Date slips | <input type="checkbox"/> | Children's toys and games | <input type="checkbox"/> |
| Cards: | | Other (specify) | <input type="checkbox"/> |
| Application cards | <input type="checkbox"/> | | |

MATERIALS, PRODUCTS, SUBJECT MATTER, AND SERVICES

Record an "X" to indicate materials, products, subject matter or services specialties.

Material Specialties Books

MATERIALS, PRODUCTS, SUBJECT MATTER, AND SERVICES—Continued

Reference	<input type="checkbox"/>	Bibliographies	<input type="checkbox"/>
Bibliographies	<input type="checkbox"/>	Catalogs	<input type="checkbox"/>
Fiction	<input type="checkbox"/>	Displays and exhibits	<input type="checkbox"/>
Technical	<input type="checkbox"/>	Translations	<input type="checkbox"/>
Textbooks	<input type="checkbox"/>	Medical records	<input type="checkbox"/>
Research	<input type="checkbox"/>	Book reviews	<input type="checkbox"/>
Braille	<input type="checkbox"/>	Reading lists	<input type="checkbox"/>
Brochures	<input type="checkbox"/>	Publicity releases	<input type="checkbox"/>
Catalogs	<input type="checkbox"/>	Professional publications	<input type="checkbox"/>
Charts	<input type="checkbox"/>	Statistical reports	<input type="checkbox"/>
Documents	<input type="checkbox"/>	Survey reports	<input type="checkbox"/>
Government documents	<input type="checkbox"/>	Library material inventories	<input type="checkbox"/>
House organs	<input type="checkbox"/>	Catalog cards	<input type="checkbox"/>
Journals	<input type="checkbox"/>	Classification cards	<input type="checkbox"/>
Trade journals	<input type="checkbox"/>	Book marks	<input type="checkbox"/>
Professional journals	<input type="checkbox"/>	Order lists	<input type="checkbox"/>
Manuals	<input type="checkbox"/>	Annual reports	<input type="checkbox"/>
Technical	<input type="checkbox"/>	Correspondence	<input type="checkbox"/>
Instructional	<input type="checkbox"/>	Questionnaires	<input type="checkbox"/>
Repair and maintenance	<input type="checkbox"/>	Budgets	<input type="checkbox"/>
Maps	<input type="checkbox"/>	Oral History	<input type="checkbox"/>
Music scores	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Newspapers	<input type="checkbox"/>		
Pamphlets	<input type="checkbox"/>	Subject Matter Specialities:	
Technical publications	<input type="checkbox"/>	Art	<input type="checkbox"/>
Yearbooks	<input type="checkbox"/>	Architecture and Urban Planning	<input type="checkbox"/>
Film strips	<input type="checkbox"/>	Business	<input type="checkbox"/>
Videotapes	<input type="checkbox"/>	Economics	<input type="checkbox"/>
Phonograph records	<input type="checkbox"/>	Biology	<input type="checkbox"/>
Audiotapes	<input type="checkbox"/>	Chemistry	<input type="checkbox"/>
Music tapes	<input type="checkbox"/>	Bio-medicine	<input type="checkbox"/>
Language tapes	<input type="checkbox"/>	Medicine	<input type="checkbox"/>
Teaching tapes	<input type="checkbox"/>	Education	<input type="checkbox"/>
Lecture tapes	<input type="checkbox"/>	Engineering	<input type="checkbox"/>
Serials	<input type="checkbox"/>	Mathematical Sciences	<input type="checkbox"/>
Continuations	<input type="checkbox"/>	Law	<input type="checkbox"/>
Foreign language publications	<input type="checkbox"/>	English literature	<input type="checkbox"/>
Periodicals	<input type="checkbox"/>	Maps and charts	<input type="checkbox"/>
Slides	<input type="checkbox"/>	Documents	<input type="checkbox"/>
Transparencies	<input type="checkbox"/>	Music	<input type="checkbox"/>
Motion pictures	<input type="checkbox"/>	Physics	<input type="checkbox"/>
Pictures	<input type="checkbox"/>	Theater arts	<input type="checkbox"/>
Film loops	<input type="checkbox"/>	Sciences and technology	<input type="checkbox"/>
Microfilms	<input type="checkbox"/>	Social sciences	<input type="checkbox"/>
Microfiches	<input type="checkbox"/>	Biological sciences	<input type="checkbox"/>
Microcards	<input type="checkbox"/>	Education	<input type="checkbox"/>
Cassette tapes	<input type="checkbox"/>	Children's books	<input type="checkbox"/>
Patents	<input type="checkbox"/>	Young adults' books	<input type="checkbox"/>
Literature reprints	<input type="checkbox"/>	Fiction books	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Foreign language books	<input type="checkbox"/>
		History	<input type="checkbox"/>
Product Specialities:		Genealogy	<input type="checkbox"/>
Abstracts	<input type="checkbox"/>	Serials	<input type="checkbox"/>
Accession records and lists	<input type="checkbox"/>	Literature	<input type="checkbox"/>
Annotations	<input type="checkbox"/>	Humanities	<input type="checkbox"/>

MATERIALS, PRODUCTS, SUBJECT MATTER, AND SERVICES—Continued

Physical sciences	<input type="checkbox"/>	Orientation classes	<input type="checkbox"/>
Philosophy and religion	<input type="checkbox"/>	Audiovisual programs	<input type="checkbox"/>
Periodicals	<input type="checkbox"/>	Children's story hours	<input type="checkbox"/>
Serials	<input type="checkbox"/>	Book talks	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Community surveys	<input type="checkbox"/>
Services Specialties:		Film shows	<input type="checkbox"/>
Readers advisory	<input type="checkbox"/>	Book fairs	<input type="checkbox"/>
Reference	<input type="checkbox"/>	Creative dramatics	<input type="checkbox"/>
Children's	<input type="checkbox"/>	Reading programs	<input type="checkbox"/>
Young adults	<input type="checkbox"/>	Outreach activity	<input type="checkbox"/>
Community programs	<input type="checkbox"/>	Book location	<input type="checkbox"/>
Student	<input type="checkbox"/>	Bookmobile	<input type="checkbox"/>
Discussion groups	<input type="checkbox"/>	Circulation	<input type="checkbox"/>
Creative writing	<input type="checkbox"/>	Copying services	<input type="checkbox"/>
Creative media exhibits	<input type="checkbox"/>	Interlibrary loan services	<input type="checkbox"/>
School library surveys	<input type="checkbox"/>	Hold services	<input type="checkbox"/>
Library tours	<input type="checkbox"/>	Reserve book room	<input type="checkbox"/>
		Other (specify)	<input type="checkbox"/>

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

Agriculture	<input type="checkbox"/>	Government Service	<input type="checkbox"/>
Commercial	<input type="checkbox"/>	Industrial	<input type="checkbox"/>
Business Service	<input type="checkbox"/>	Insurance	<input type="checkbox"/>
Food and Beverage	<input type="checkbox"/>	Legal	<input type="checkbox"/>
Lodging Service	<input type="checkbox"/>	Library	<input type="checkbox"/>
Printing and Publishing	<input type="checkbox"/>	Medical Service	<input type="checkbox"/>
Repair Service	<input type="checkbox"/>	Military	<input type="checkbox"/>
Sales	<input type="checkbox"/>	Nonprofit	<input type="checkbox"/>
Communications	<input type="checkbox"/>	Office Service	<input type="checkbox"/>
Conservation	<input type="checkbox"/>	Recreation	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Social Service	<input type="checkbox"/>
Correctional	<input type="checkbox"/>	Subsurface and Space	<input type="checkbox"/>
Educational	<input type="checkbox"/>	Transportation	<input type="checkbox"/>
Entertainment	<input type="checkbox"/>	Utilities	<input type="checkbox"/>
Exhibition Center	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Financial	<input type="checkbox"/>		

LOGGING

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates activities concerned with:

- Logging of trees and overall woods operations
- Other (specify)

Supervises, and coordinates activities of, workers engaged in:

- Cruising timber lands, estimating quality and quantity of stands, and developing logging plans
- Clearing brush, piling and burning slash to reduce fire hazards and facilitate logging activity
- Rigging and operating high-lead or other yarding systems
- Felling trees, trimming limbs, and bucking felled trees in specified length logs
- Operating machines and equipment to load logs for transportation to mill
- Unloading and stacking logs, sorting logs into booms, and assembling rafts
- Other (specify)

Studies and reviews:

- Data on topographical characteristics
- Estimates of quantity and quality of trees in stand
- Age and species of trees in stand
- Logging orders
- Site to be logged
- Other (specify)

Plans:

- Manpower requirements for operations
- Work schedules
- Logging operations
- Surveys of timberlands
- Machine and equipment requirements
- Sequence of unloading logs from transportation vehicles
- Other (specify)

Determines:

- Pattern, intensity, and type of survey on timberlands
- Sampling methods to be used in survey
- Organization and complement of cruise party
- Area to be logged
- Best direction for felling trees in order to:
 - Minimize danger of breaks or damage to other trees
 - Facilitate yarding operations
- Logging and yarding system to be used for survey of terrain
- Other (specify)

Prepares:

- Work schedules

WHAT THE WORKER DOES - Continued

- Logging schedules
- Estimates, maps, and reports on timberland surveyed
- Reports on logging methods, efficiency of operation, and progress of work
- Schedules for burning brush and slash depending on weather reports and data
- Other (specify)
- Assigns workers to specific duties
- Gives work directions concerning:
 - Rigging of spar tree or portable tower
 - Notching of anchor stumps
 - Placement of guywires and running tackle
 - Dismantling and moving of ground rigging equipment
 - Location of anchor stumps
 - Attaching straps
 - Reeving yarding cables through blocks
 - Trees to be felled or saved
 - Direction and sequence of felling trees
 - Stump heights and by lengths
 - Other (specify)
- Selects:
 - Spar trees for attaching high-lead rigging
 - Anchor stumps for rigging of guy wires
 - Landing area of yarding operations
 - Placement position of yarding and loading machines
 - Vantage point for observing yarding operations
 - Trees to be logged and marks them for cutting
 - Area for burning brush and slash
 - Logs for loading onto trucks to obtain balanced load of specified species and grade
 - Other (specify)
- Operates machines and equipment to:
 - Yard logs to landing area
 - Load logs on trucks or other transporting equipment
 - Unload and stack logs at mill site
 - Transport logs from loading area to mill
 - Other (specify)
- Moves levers, controls, and pedals on machines to:
 - Start or stop machine
 - Rotate loader on chassis
 - Raise or lower tongs or grapple
 - Open or close grapple
 - Pull or swing grapple out
 - Speed up or slow down machine operations
- Hoist, position, and load log on truck
- Engage or disengage winches
- Haul logs to landing area
- Send choker cables back to yarding area
- Control speed of winch drums
- Keep mainline taut for raising logs
- Prevent choker cables from snagging on obstacles
- Raise or lower hydraulically operated jacks on equipment
- Raise or lower spar into or from cradle on machine
- Extend or retract telescoping section of spar
- Pay out, tighten, or reel in guywires
- Other (specify)
- Signals worker to:
 - Pull choker free from log
 - Slack or hold lines while equipment is attached
 - Return rigging to choker setting area
 - Hoist rigging to spar tree top
 - Conduct load tests on yarding rigging
 - Position truck trailer for loading operations
- Relay operating instructions when:
 - Chokers are set and workers are clear of area
 - Logs become snagged during yarding operations
 - Danger to workers is evident
- Hoist trailer from chassis of logging truck
- Push logs between frame members of raft
- Slacken or take up on choker rigging
- Hoist and position log on bunker of truck
- Attaches:
 - Choker around log to be yarded
 - Pass block to tree and reeves cable through block for hoisting rigging
 - Crane hook to log trailer on chassis of truck
 - High-lead rigging and guywires to spar tree or straps
 - Other (specify)
- Observes:
 - Workers and listens for signals from rigging load worker
 - Worker activities for conformance with established standards for:
 - Quality of work
 - Quantity of work

WHAT THE WORKER DOES - Continued

- Observance of safety rules and practices
- Yarding and log loading operations to insure worker compliance with safety and working practices
- Logging operations to:
 - Ensure worker compliance with contract provisions
 - Prevent loss of lumber from breakage
 - Prevent damage to residual stand of trees
 - Other (specify)
- Confers with supervisory personnel to:
 - Ascertain ground rigging requirements
 - Ascertain data regarding area to be logged
 - Obtain data on make up of rafts and booms
 - Other (specify)
- Surveys forest lands and timber stands to:
 - Obtain estimate of timber in stands
 - Develop topographical maps and charts
 - Locate:
 - Reference points
 - Section lines
 - Boundaries
 - Direction and slope of terrain
 - Other (specify)
- Examines logs to determine their:
 - Grade
 - Species
 - Diameter
 - Length
 - Other (specify)
- Estimates:
 - Waste of lumber due to shape of tree or defects
 - Marketable lumber content of logs
 - Loss of board footage caused by sawing or defects
 - Other (specify)
- Rig blocks, cable, and tackle on spar tree for yarding purposes
- Climbs trees to install rigging
- Cuts limbs, knots, and top from trees
- Examines tree top for defects and soundness
- Measures diameter of tree top
- Changes positions of blocks, as required, during yarding operations
- Removes rigging from spar tree upon completion of yarding operations
- Inspects, maintains, and repairs rigging and tackle
- Studies site of stand to be logged and yarded
- Relays orders from workers during yarding operations
- Connects electrical wiring to sending key and yarder signal system
- Pays out electrical line until vantage point of observation is reached
- Pushes controls on sending key to relay signals
- Sounds emergency signal when accidents occur or unsafe conditions arise
- Assembles, computes, and summarizes survey statistical data
- Places section marker, cuts blaze in tree, or drives survey stake in ground
- Writes field notes and computes plots
- Summarizes data for preparation of maps and property description
- Cruises over specified area in pre-established pattern
- Samples stand of trees according to pre-determined techniques
- Writes field notes listing:
 - Timber species and size
 - Outstanding topographical features
 - Existing communication and transportation facilities
- Brands logs to indicate cutting origin, species, and intended use
- Cuts rings around bole of tree and straight line through bark
- Peels tanbark from tree
- Stacks tanbark to prevent weathering of tannin in bark
- Verifies load manifests to ascertain species of logs
- Schedules sorting and rafting of logs
- Separates logs according to size and species
- Deflects logs into designated bays
- Closes bays with chain or cable
- Opens bay and moves designated logs into raft section
- Drags choker to log being yarded
- Passes choker around log and hooks it to bell
- Tightens noose and signals worker that choker is set
- Unhooks chokers from yarding logs
- Pulls end of choker from bell fastener
- Pulls choker cable to obtain slack
- Clears earth or brush under log to facilitate attaching of choker
- Stretches free end of choker cable toward tractor runway

WHAT THE WORKER DOES - Continued

- | | | | |
|--|--------------------------|---|--------------------------|
| Fastens choker and winch cable together with clevis | <input type="checkbox"/> | Maneuvers logs into position inside frame | <input type="checkbox"/> |
| Saws undercut in hole of tree to fix direction of fall | <input type="checkbox"/> | Binds logs into raft with chains | <input type="checkbox"/> |
| Saws buckout on opposite side of tree to fell tree | <input type="checkbox"/> | Couples trailer to truck | <input type="checkbox"/> |
| Inserts and drives wedges in buckout to tip tree in specified direction and prevent binding of saw | <input type="checkbox"/> | Directs placement of logs on truck bunkers | <input type="checkbox"/> |
| Measures and marks hole of felled trees for cutting into log lengths | <input type="checkbox"/> | Releases tongs from logs | <input type="checkbox"/> |
| Saws felled trees into logs of specified length | <input type="checkbox"/> | Specifies method of piling brush and slash and number of piles | <input type="checkbox"/> |
| Places limbs or poles under felled tree to avoid splitting underside | <input type="checkbox"/> | Notifies fire officials of scheduled time and location of burning | <input type="checkbox"/> |
| Hammers plugs into holes in end of logs | <input type="checkbox"/> | Patrols area during burning operations | <input type="checkbox"/> |
| Assembles logs into rafts | <input type="checkbox"/> | Drives and controls operation of motorboat to: | |
| Bares holes in boom sticks and switters | <input type="checkbox"/> | Pull and push logs | <input type="checkbox"/> |
| Threads chain or cable through holes to form raft frame | <input type="checkbox"/> | Gather logs into boom | <input type="checkbox"/> |
| | | Close log booms | <input type="checkbox"/> |
| | | Sort logs according to species and size | <input type="checkbox"/> |
| | | Tow boom to mill | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | | | |
|-------------------------|--------------------------|-------------------------|--------------------------|
| Management | <input type="checkbox"/> | Loading personnel | <input type="checkbox"/> |
| Supervisors | <input type="checkbox"/> | Survey personnel | <input type="checkbox"/> |
| Mill personnel | <input type="checkbox"/> | Machine operators | <input type="checkbox"/> |
| Loggers | <input type="checkbox"/> | Truck drivers | <input type="checkbox"/> |
| Helpers | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Yarding personnel | <input type="checkbox"/> | | |

EDUCATION AND TRAINING

Record an "X" to indicate education and training requirements.

- | | | | |
|----------------------|--------------------------|---------------------------|--------------------------|
| Elementary | <input type="checkbox"/> | Vocational School | <input type="checkbox"/> |
| High School | <input type="checkbox"/> | Technical School | <input type="checkbox"/> |
| Junior College | <input type="checkbox"/> | On-the-job Training | <input type="checkbox"/> |
| College | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

SUBJECTS AND COURSES

Record an "X" to indicate subjects and courses that develop skills for the occupation.

- | | | | |
|--------------------------------------|--------------------------|--------------------------------------|--------------------------|
| Related Subjects and Courses: | | Elements of Supervision | <input type="checkbox"/> |
| Practical Arithmetic | <input type="checkbox"/> | Estimating | <input type="checkbox"/> |
| Drafting | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Mechanical Drawing | <input type="checkbox"/> | | |
| Welding | <input type="checkbox"/> | Logging: | |
| Use and Care of Handtools | <input type="checkbox"/> | Forest Orientation: | |
| Use and Care of Instruments | <input type="checkbox"/> | History | <input type="checkbox"/> |
| First Aid | <input type="checkbox"/> | Cutting, Felling, Thinning, Bucking, | |
| Fire Prevention and Fighting | <input type="checkbox"/> | and Terminology | <input type="checkbox"/> |
| Employment Skills and Benefits | <input type="checkbox"/> | Insects and Pest Control | <input type="checkbox"/> |
| Human Relations | <input type="checkbox"/> | Selective Logging | <input type="checkbox"/> |

SUBJECTS AND COURSES—Continued

- | | | | |
|---|--------------------------|--|--------------------------|
| Timber Cruising | <input type="checkbox"/> | Ground Tackle Overhauling | <input type="checkbox"/> |
| Scaling Logs and Log Market | <input type="checkbox"/> | Standing and Running Rigging | |
| Planting, Seeding, and Conservation | <input type="checkbox"/> | Overhaul | <input type="checkbox"/> |
| Forest Surveying: | | Inspection of Rigging Gear | <input type="checkbox"/> |
| Basic Elements of Forest Surveying | <input type="checkbox"/> | Load Testing | <input type="checkbox"/> |
| Photographic Interpretation | <input type="checkbox"/> | Cable Preserving | <input type="checkbox"/> |
| Surveying Tapes and Chains: | | Logging Equipment Operation: | |
| Taping | <input type="checkbox"/> | Engine Oil Check | <input type="checkbox"/> |
| Metallic Tapes | <input type="checkbox"/> | Cooling System Check | <input type="checkbox"/> |
| Abney Level | <input type="checkbox"/> | Air Filter Check | <input type="checkbox"/> |
| Plumb Bob | <input type="checkbox"/> | Battery Check | <input type="checkbox"/> |
| Staff Compass | <input type="checkbox"/> | Lubrication | <input type="checkbox"/> |
| Leveling: | | Visual Inspection of Equipment: | |
| Levels | <input type="checkbox"/> | Loose or Missing Bolts | <input type="checkbox"/> |
| Leveling Methods | <input type="checkbox"/> | Broken Parts | <input type="checkbox"/> |
| Timber Harvesting: | | Points of Wear | <input type="checkbox"/> |
| Forest Road Engineering | <input type="checkbox"/> | Engine Starting Procedures | <input type="checkbox"/> |
| Harvesting Methods and Planning | | Checking Equipment While Operating | <input type="checkbox"/> |
| Procedures | <input type="checkbox"/> | Shut Down Procedures | <input type="checkbox"/> |
| Logging Forestry: | | Logging Equipment Maintenance: | |
| Forest Safety | <input type="checkbox"/> | Study of Lubrication and Its | |
| Study of Trees: | | Importance | <input type="checkbox"/> |
| Conifers, Types and Uses | <input type="checkbox"/> | Nuts and Bolts | <input type="checkbox"/> |
| Deciduous, Types and Uses | <input type="checkbox"/> | Cutting Torch | <input type="checkbox"/> |
| Introduction to Logging Handtools | <input type="checkbox"/> | Trouble Shooting | <input type="checkbox"/> |
| Woods Terminology | <input type="checkbox"/> | Ignition | <input type="checkbox"/> |
| Falling and Bucking | <input type="checkbox"/> | Starting Motor | <input type="checkbox"/> |
| Selective Logging | <input type="checkbox"/> | Generator | <input type="checkbox"/> |
| Logging Construction | <input type="checkbox"/> | Carburetor and Gas | <input type="checkbox"/> |
| Yarding | <input type="checkbox"/> | Exhaust | <input type="checkbox"/> |
| The Landing | <input type="checkbox"/> | Motor Overhaul | <input type="checkbox"/> |
| Loading | <input type="checkbox"/> | Transmission | <input type="checkbox"/> |
| Reloading | <input type="checkbox"/> | Rear End Differential | <input type="checkbox"/> |
| Forest Engineering: | | Frames | <input type="checkbox"/> |
| Logging Methods | <input type="checkbox"/> | Tires | <input type="checkbox"/> |
| Selection of Landings and Settings | <input type="checkbox"/> | Batteries | <input type="checkbox"/> |
| Logging Cost Control | <input type="checkbox"/> | Diesel Motors | <input type="checkbox"/> |
| Topography | <input type="checkbox"/> | Crawlers | <input type="checkbox"/> |
| Map Reading | <input type="checkbox"/> | Brakes | <input type="checkbox"/> |
| Soils and Compaction | <input type="checkbox"/> | Front Ends | <input type="checkbox"/> |
| Use of Engineering Instruments | <input type="checkbox"/> | Lighting System | <input type="checkbox"/> |
| Rigging: | | Other (specify) | <input type="checkbox"/> |
| Wire Rope Splicing | <input type="checkbox"/> | | |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

- | | | | |
|--------------------------|--------------------------|-------------------------------------|--------------------------|
| Types of machines: | | Machines: | |
| Console controlled | <input type="checkbox"/> | Log loading machines: | |
| Manually operated | <input type="checkbox"/> | Dip-stick boom loader | <input type="checkbox"/> |
| Remote controlled | <input type="checkbox"/> | Hayrack loader | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Heel-boom-shovel loader | <input type="checkbox"/> |
| | | Grapple-and-power-tong loader | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

Yarding machines:

- Balloon suspended yarders
- Mobile tower yarders
- High-load yarders
- Skyline yarders
- Radio-controlled-carriage yarders
- Tractor yarders
- Other (specify)

- Boomboats
- Log stacking machines
- Log unloading machines
- Logging trucks
- Donkey machines
- Drott slasher machine
- Logma machine
- Other (specify)

Tools:

Handtools:

- Adzes
- Axes
- Crowbars
- Hammers
- Hatchets
- Marlin spikes
- Peavies
- Pikes
- Pickaroons
- Canthooks
- Shovels
- Wrenches
- Pickaxes
- Mauls
- Sledges
- Cross-cut saws
- Branding hammer
- Cable splicing tools

- Hand saw
- Screw drivers
- Other (specify)
- Power handtools
- Chain saw
- Other (specify)

Equipment:

- Electric sending key
- Radio transmitter
- Walkie-talkie
- Other (specify)

Work Aids:

- Surveying instruments:
 - Transit
 - Alidade
- Drafting instruments
- Blocks
- Cables
- Guy wires
- Climbing spurs
- Safety belts
- Survey reports
- Logging schedules
- Portable towers
- Mill orders
- Clevises
- Tongs
- Logging reports
- Caulk boots
- Maps
- Charts
- Measuring tapes
- Scales
- Cutting schedules
- Other (specify)

PRODUCTS AND SERVICES

Record an "X" to indicate products or services.

Products:

Bolts:

- Handle
- Heading
- Shingle
- Stave
- Burls
- Crotches
- Driving timber
- Excelsior stock
- Last blocks

Logs:

- Softwood logs

- Hardwood logs
- Veneer logs
- Peeler logs
- Skidding logs
- Piling
- Poles
- Posts
- Pickets and paling
- Rails
- Stumps
- Ties
- Wheelstock
- Other (specify)

PRODUCTS AND SERVICES—Continued

- Services:
- | | | | |
|--------------------|--------------------------|------------------------|--------------------------|
| Logging | <input type="checkbox"/> | Pulpwood cutting | <input type="checkbox"/> |
| Pole cutting | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

- | | | | |
|-------------------------------|--------------------------|----------------------------|--------------------------|
| Agriculture | <input type="checkbox"/> | Financial | <input type="checkbox"/> |
| Commercial: | | Government Service | <input type="checkbox"/> |
| Business Service | <input type="checkbox"/> | Industrial | <input type="checkbox"/> |
| Food and Beverage | <input type="checkbox"/> | Insurance | <input type="checkbox"/> |
| Lodging Service | <input type="checkbox"/> | Legal | <input type="checkbox"/> |
| Personnel Service | <input type="checkbox"/> | Library | <input type="checkbox"/> |
| Printing and Publishing | <input type="checkbox"/> | Medical Service | <input type="checkbox"/> |
| Repair Service | <input type="checkbox"/> | Military | <input type="checkbox"/> |
| Sales | <input type="checkbox"/> | Nonprofit | <input type="checkbox"/> |
| Communications | <input type="checkbox"/> | Office Service | <input type="checkbox"/> |
| Conservation | <input type="checkbox"/> | Recreation | <input type="checkbox"/> |
| Construction | <input type="checkbox"/> | Social Service | <input type="checkbox"/> |
| Correctional | <input type="checkbox"/> | Subsurface and Space | <input type="checkbox"/> |
| Educational | <input type="checkbox"/> | Transportation | <input type="checkbox"/> |
| Entertainment | <input type="checkbox"/> | Utilities | <input type="checkbox"/> |
| Exhibition Center | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

PAPER AND PAPERBOARD CONVERTING

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates activities concerned with:

- Die cutting paper and paperboard for the trade
- Manufacturing from purchased materials:
 - Paper goods
 - Pulp goods
 - Fiber products
 - Other (specify)

Supervises, and coordinates activities of, workers engaged in:

- Setting up, operating, or feeding, processing machines or equipment
- Converting purchased materials into:
 - Die-cut paper products
 - Cardboard
 - Coated, glazed, or other type of surface, processed paper product
 - Envelopes
 - Bags of all types, except textile
 - Pressed and molded pulp goods
 - Sanitary paper products
 - Stationery, tablets, and related items
 - Allied or miscellaneous paper products
 - Paperboard boxes
 - Corrugated and solid fiber boxes
 - Sanitary food containers
 - Fiber cans, drums, tubes, and similiar fiber or paperboard products
 - Other (specify)

Plans:

- Manpower requirements
- Work schedules
- Production procedures
- Machine and equipment requirements
- Work training requirements
- Inspection methods and procedures
- Other (specify)

Reads or reviews:

- Product specifications
- Production schedules
- Material specifications
- Laboratory analyses and test reports
- Processing schedules
- Other (specify)

WHAT THE WORKER DOES—Continued

- Prepares work and worker schedules
- Assigns workers to specific duties
- Interprets manufacturing orders, specifications, and technical data for workers
- Inspects products for conformance with specifications
- Gives workers work directions concerning assigned duties
- Advises workers on methods and procedures for solving work problems
- Orders changes in processing or manufacturing procedures
- Enforces worker compliance with established work procedures, regulations, and safety rules
- Requisitions materials, tools, and equipment
- Notifies maintenance personnel of repair and maintenance requirements
- Keeps processing, production, and manufacturing records
- Prepares activity and production reports
- Other (specify)
- Coordinates:
 - Department activities with activities of other departments
 - Worker activities to obtain optimum production
 - Other (specify)
- Trains workers in:
 - Setup of machines and equipment
 - Operation of machines
 - Controlling equipment
 - Performing assigned duties
 - Other (specify)
- Determines:
 - Material requirements
 - Processing sequences
 - Setup of machines and equipment
 - Adjustments required to machines and equipment
 - Other (specify)
- Sets up machines or equipment for other workers
- Sets up and operates machines
- Operates machines
- Controls operation of equipment
- Tends pre-setup machines or equipment
- Assists in operation of machines or equipment
- Feeds materials into machines or equipment
- Offbears materials or products from machines or equipment
- Other (specify)
- Installs, aligns, and secures:
 - Guides
 - Stops
 - Gears
 - Plungers
 - Rolls
 - Sawblades
 - Dies
 - Cutters
 - Perforators
 - Printing attachments
 - Other (specify)
- Attaches or laps
- End of material onto rewriter
- Turns handwheels or moves levers or controls to:
 - Set machine stops and guides
 - Adjust:
 - Position of forming bar
 - Space between rolls
 - Flow from glue regulator
 - Tension on pressure rolls
 - Tension on material
 - Material feed guides
 - Start machine
 - Regulate temperature of processing equipment
 - Charge material into equipment tanks
 - Meter materials into equipment
 - Synchronize speed of:
 - Gluing and coating rolls
 - Machine rolls with feed speed of materials
 - Machine operation to obtain and insure uniform material:
 - Cutting
 - Slitting
 - Folding
 - Gluing
 - Sealing
 - Stop machine
 - Other (specify)
- Observes or monitors:
 - Counters
 - Gages
 - Operation of machine or equipment
 - Other (specify)

WHAT THE WORKER DOES—Continued

<p>Inspects products for conformance with manufacturing specifications:</p> <p>Examines in-process and final products for defects, such as:</p> <p>Blisters <input type="checkbox"/></p> <p>Wrinkles <input type="checkbox"/></p> <p>Spots:</p> <p> Glue spots <input type="checkbox"/></p> <p> Dirt <input type="checkbox"/></p> <p>Cocked edges <input type="checkbox"/></p> <p>Imperfect folding or scaling <input type="checkbox"/></p> <p>Printing overlaps and clarity <input type="checkbox"/></p> <p>Color distortions <input type="checkbox"/></p> <p>Measures dimensions <input type="checkbox"/></p> <p>Sorts defective products for salvaging <input type="checkbox"/></p> <p>Other (specify) <input type="checkbox"/></p> <p>Tests samples of products for:</p> <p>Burst resistance <input type="checkbox"/></p> <p>Crush resistance <input type="checkbox"/></p> <p>Tear resistance <input type="checkbox"/></p> <p>Conformance with customer specifications <input type="checkbox"/></p> <p>Coating weight by:</p> <p> Weighing coated and uncoated material <input type="checkbox"/></p> <p> Other (specify) <input type="checkbox"/></p> <p>Estimates manufacturing costs for production of paper goods <input type="checkbox"/></p> <p>Records on forms:</p> <p> Inspection findings <input type="checkbox"/></p> <p> Test results <input type="checkbox"/></p>	<p>Maintenance and repair activities <input type="checkbox"/></p> <p>Material expenditures <input type="checkbox"/></p> <p>Other (specify) <input type="checkbox"/></p> <p>Repairs and maintains paper working machines and equipment:</p> <p> Observes machine in operation to locate cause of malfunction <input type="checkbox"/></p> <p> Disassembles machine <input type="checkbox"/></p> <p> Examines parts for broken or excessive worn components <input type="checkbox"/></p> <p> Replaces defective parts <input type="checkbox"/></p> <p> Reassembles machine <input type="checkbox"/></p> <p> Other (specify) <input type="checkbox"/></p> <p>Operates machine in trial run to verify setup:</p> <p> Makes adjustments to obtain specified operational performance <input type="checkbox"/></p> <p> Gives operator of machine operational directions <input type="checkbox"/></p> <p> Other (specify) <input type="checkbox"/></p> <p> Positions materials against stops or guides <input type="checkbox"/></p> <p> Mixes coatings or adhesives according to formula <input type="checkbox"/></p> <p> Dumps mixed materials into hopper or tank <input type="checkbox"/></p> <p> Assembles paper goods products manually <input type="checkbox"/></p> <p> Constructs steel die rules <input type="checkbox"/></p> <p> Mounts rubber dies on fiberboard mats <input type="checkbox"/></p> <p> Other (specify) <input type="checkbox"/></p>
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COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

<p>Management <input type="checkbox"/></p> <p>Superintendent <input type="checkbox"/></p> <p>Supervisors <input type="checkbox"/></p> <p>Other Supervisors <input type="checkbox"/></p> <p>Operators <input type="checkbox"/></p>	<p>Helpers <input type="checkbox"/></p> <p>Workers <input type="checkbox"/></p> <p>Quality Control Personnel <input type="checkbox"/></p> <p>Other (specify) <input type="checkbox"/></p>
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EDUCATION AND TRAINING

Record an "X" to indicate education and training requirements.

<p>Elementary <input type="checkbox"/></p> <p>High School <input type="checkbox"/></p> <p>Junior College <input type="checkbox"/></p> <p>Vocational School <input type="checkbox"/></p>	<p>Technical School <input type="checkbox"/></p> <p>On-the-job Training <input type="checkbox"/></p> <p>Other (specify) <input type="checkbox"/></p>
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SUBJECTS AND COURSES

Record an "X" to indicate subjects and courses that develop worker skills.

- | | |
|--|--|
| Subjects and courses:
Practical Arithmetic <input type="checkbox"/>
Chemistry <input type="checkbox"/>
Coated Papers <input type="checkbox"/>
Paper-Plastic Combinations <input type="checkbox"/>
Converting Operations <input type="checkbox"/> | Use and Care of Handtools <input type="checkbox"/>
Use and Care of Paper-working Machines <input type="checkbox"/>
Machine Operations <input type="checkbox"/>
Elements of Supervision <input type="checkbox"/>
Human Relations <input type="checkbox"/>
Other (specify) <input type="checkbox"/> |
|--|--|

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

- | | |
|---|---|
| Machine types:
Automatic <input type="checkbox"/>
Manually controlled <input type="checkbox"/>
Multi-purpose <input type="checkbox"/>
Semi-automatic <input type="checkbox"/>
Other (specify) <input type="checkbox"/>

Machines:
Apple-liner machine <input type="checkbox"/>
Bag machine:
Cellophane bag machine <input type="checkbox"/>
Polyethylene bag machine <input type="checkbox"/>
Waxed bag machine <input type="checkbox"/>
Bar-creaser machine <input type="checkbox"/>
Bender machine <input type="checkbox"/>
Book-jacket-cover machine <input type="checkbox"/>
Box lining machine <input type="checkbox"/>
Capping machine <input type="checkbox"/>
Carton forming machine <input type="checkbox"/>
Convolute tube winder machine <input type="checkbox"/>
Corner cutting machine:
Double-corner-cutting machine <input type="checkbox"/>
Single-corner-cutting machine <input type="checkbox"/>
Corrugator machine:
Board-lining machine <input type="checkbox"/>
Double-facing-corrugating machine <input type="checkbox"/>
Single-facing-corrugating machine <input type="checkbox"/>
Crimping machine <input type="checkbox"/>
Curling machine <input type="checkbox"/>
Cutting-and-creasing press <input type="checkbox"/>
Cutting machine <input type="checkbox"/>
Cutoff machine <input type="checkbox"/>
Dorer machine <input type="checkbox"/>
Drill-punch machine <input type="checkbox"/>
Embosser machine <input type="checkbox"/>
Embossograph <input type="checkbox"/>
Envelope machine:
Plunger machine <input type="checkbox"/>
Rotary-envelope-machine <input type="checkbox"/>
Side-seaming-folding-machine <input type="checkbox"/>
Web folding machine <input type="checkbox"/> | Ending machine:
Double-ending machine <input type="checkbox"/>
Single-ending machine <input type="checkbox"/>
Extension-edger machine <input type="checkbox"/>
Folding machine:
Double fold machine <input type="checkbox"/>
Folded towel machine <input type="checkbox"/>
Napkin machine <input type="checkbox"/>
Single fold machine <input type="checkbox"/>
Four-corner-stayer machine <input type="checkbox"/>
Gluing machine <input type="checkbox"/>
Gummed-paper press <input type="checkbox"/>
Knotting machine <input type="checkbox"/>
Labeling machine <input type="checkbox"/>
Lace-paper-press <input type="checkbox"/>
Laundry-bag-punch-machine <input type="checkbox"/>
Layboy <input type="checkbox"/>
Panel machine <input type="checkbox"/>
Paper cone machine <input type="checkbox"/>
Paper core machine <input type="checkbox"/>
Paper cup machine <input type="checkbox"/>
Paper reel machine <input type="checkbox"/>
Partition machine <input type="checkbox"/>
Patch machine <input type="checkbox"/>
Punchboard filling machine <input type="checkbox"/>
Ribbon banking machine <input type="checkbox"/>
Rewinder machine <input type="checkbox"/>
Ring making machine <input type="checkbox"/>
Roll reclaimer machine <input type="checkbox"/>
Ruf spooling machine <input type="checkbox"/>
Scoring machine:
Double scoring machine <input type="checkbox"/>
Single scoring machine <input type="checkbox"/>
Sealing machine <input type="checkbox"/>
Shot tube machine <input type="checkbox"/>
Slitter-scorer-cutoff machine:
Slitter-and-cutter machine <input type="checkbox"/>
Slitter-cutoff machine <input type="checkbox"/>
Slitting machine <input type="checkbox"/>
Slotter machine <input type="checkbox"/>
Spiral-tubewinder machine <input type="checkbox"/> |
|---|---|

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- Stitcher machine
- Stringing machine
- String top sealer machine
- Stripping machine
- Tape fastener machine
- Tag machine
- Tightening machine
- Tube machine
- Valving machine
- Combination valving and sewing
 machine
- Wrapping machine
- Other (specify)

Tools:

Handtools:

- Screwdrivers
- Wrenches
- Bars
- Hammers
- Pliers
- Shears
- Mauls
- Files
- Other (specify)

Power handtools:

- Impact wrenches
- Power screwdrivers
- Other (specify)

Equipment:

- Coating equipment
- Combiner machines:
- Laminating equipment

- Pasting equipment
- Driers
- Drying cabinets
- Strap making machines
- Supercalenders
- Waxing equipment
- Weight scales
- Laboratory scales
- Other (specify)

Work Aids:

- Charts
- Forms:
- Inspection forms
- Production forms
- Test report forms
- Measuring devices:
- Templates
- Patterns
- Tape measures
- Rules
- Compasses
- Calipers
- Micrometers
- Automatic micrometers
- Specifications
- Diagrams
- Tables
- Marking devices:
- Pencils
- Scribes
- Schedules
- Test equipment:
- Mullen burst tester
- Crush tester

PRODUCTS

Record an "X" to indicate type, base material used, and product manufactured.

Type of product:

- Coated
- Corrugated
- Die-cut
- Embossed
- Enameled
- Glazed
- Gummed
- Impregnated
- Laminated
- Molded
- Oiled
- Pasted
- Pressed
- Saturated
- Vulcanized

- Waxed
- Other (specify)

Type of base material:

- Cardboard
- Cellophane
- Chipboard
- Fiber:
- Fiber and metal edged
- Fiber and metal ended
- Fiberboard
- Glassine
- Masonite
- Paper:
- Paper and cloth lined
- Paper and cloth based

PRODUCTS—Continued

Paperboard	<input type="checkbox"/>	Display items	<input type="checkbox"/>
Pulp	<input type="checkbox"/>	Doillies	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Drinking straws	<input type="checkbox"/>
Product:		Drums	<input type="checkbox"/>
Bags:		Egg cartons	<input type="checkbox"/>
Cement bags	<input type="checkbox"/>	Egg cases:	
Flour bags	<input type="checkbox"/>	Fillers	<input type="checkbox"/>
Frozen food bags	<input type="checkbox"/>	Flats	<input type="checkbox"/>
Garment bags	<input type="checkbox"/>	Envelopes	<input type="checkbox"/>
Garment storage bags	<input type="checkbox"/>	Excelsior	<input type="checkbox"/>
Merchandise bags	<input type="checkbox"/>	Eyelets	<input type="checkbox"/>
Mothproof bags	<input type="checkbox"/>	Fancy paper	<input type="checkbox"/>
Produce bags	<input type="checkbox"/>	Flypaper	<input type="checkbox"/>
Shipping bags	<input type="checkbox"/>	Foilboard	<input type="checkbox"/>
Bobbins	<input type="checkbox"/>	Folders:	
Book paper	<input type="checkbox"/>	File folders	<input type="checkbox"/>
Bottles	<input type="checkbox"/>	Manila folders	<input type="checkbox"/>
Bottle tops and caps	<input type="checkbox"/>	Foundations and cutouts	<input type="checkbox"/>
Boxes:		Fuel cell forms	<input type="checkbox"/>
Filing boxes	<input type="checkbox"/>	Gift wrappers	<input type="checkbox"/>
Folding boxes	<input type="checkbox"/>	Hampers	<input type="checkbox"/>
Newsboard boxes	<input type="checkbox"/>	Handkerchief	<input type="checkbox"/>
Paperboard backs for packages	<input type="checkbox"/>	Honeycomb:	
Set-up paper board boxes	<input type="checkbox"/>	Cores	<input type="checkbox"/>
Bread wrappers	<input type="checkbox"/>	Boards	<input type="checkbox"/>
Building board	<input type="checkbox"/>	Insulating:	
Building paper	<input type="checkbox"/>	Batts	<input type="checkbox"/>
Tar paper	<input type="checkbox"/>	Blankets	<input type="checkbox"/>
Candelabra tubes	<input type="checkbox"/>	Fills	<input type="checkbox"/>
Cans	<input type="checkbox"/>	Labels (unprinted)	<input type="checkbox"/>
Cards:		Letters	<input type="checkbox"/>
File cards	<input type="checkbox"/>	Lining paper	<input type="checkbox"/>
Index cards	<input type="checkbox"/>	Litmus paper	<input type="checkbox"/>
Jacquard cards	<input type="checkbox"/>	Mailing:	
Jewelers' cards	<input type="checkbox"/>	Cases	<input type="checkbox"/>
Tabulating cards	<input type="checkbox"/>	Tubes	<input type="checkbox"/>
Cartons	<input type="checkbox"/>	Masking tape	<input type="checkbox"/>
Cases	<input type="checkbox"/>	Memorandum books	<input type="checkbox"/>
Cleaning tissues	<input type="checkbox"/>	Milk filter disks	<input type="checkbox"/>
Cones	<input type="checkbox"/>	Napkins	<input type="checkbox"/>
Confetti	<input type="checkbox"/>	Newsboard	<input type="checkbox"/>
Condenser paper	<input type="checkbox"/>	Newsprint:	
Conduits	<input type="checkbox"/>	Pads	<input type="checkbox"/>
Containers:		Tablets	<input type="checkbox"/>
Liquid food containers	<input type="checkbox"/>	Notebooks	<input type="checkbox"/>
Milk containers	<input type="checkbox"/>	Pads	<input type="checkbox"/>
Cores	<input type="checkbox"/>	Pails	<input type="checkbox"/>
Crepe paper	<input type="checkbox"/>	Pallets	<input type="checkbox"/>
Crepe paper products	<input type="checkbox"/>	Pans and voids	<input type="checkbox"/>
Cups	<input type="checkbox"/>	Paper plates	<input type="checkbox"/>
Drinking cups	<input type="checkbox"/>	Paper wrappers	<input type="checkbox"/>
Decorated wallboard	<input type="checkbox"/>	Papeteries	<input type="checkbox"/>
Desk pads	<input type="checkbox"/>	Papier mache:	
Dishes	<input type="checkbox"/>	False faces	<input type="checkbox"/>
		Halloween lanterns	<input type="checkbox"/>

PRODUCTS—Continued

- | | | | |
|-------------------------------|--------------------------|-----------------------------------|--------------------------|
| Masks | <input type="checkbox"/> | Heavy duty shipping sacks | <input type="checkbox"/> |
| Novelties | <input type="checkbox"/> | Sanitary napkins | <input type="checkbox"/> |
| Partitions | <input type="checkbox"/> | Soap impregnated paper | <input type="checkbox"/> |
| Photograph: | | Sheets | <input type="checkbox"/> |
| Folders | <input type="checkbox"/> | Spools | <input type="checkbox"/> |
| Mats | <input type="checkbox"/> | Spoons | <input type="checkbox"/> |
| Mounts | <input type="checkbox"/> | Stencilboard | <input type="checkbox"/> |
| Panels and cutouts | <input type="checkbox"/> | Tablets | <input type="checkbox"/> |
| Patterns | <input type="checkbox"/> | Tags | <input type="checkbox"/> |
| Pipe | <input type="checkbox"/> | Tapes | <input type="checkbox"/> |
| Pipefittings | <input type="checkbox"/> | Adhesive tapes | <input type="checkbox"/> |
| Pressure sensitive tape | <input type="checkbox"/> | Thermoplastic covered paper | <input type="checkbox"/> |
| Premoistened towelettes | <input type="checkbox"/> | Toilet paper | <input type="checkbox"/> |
| Punchboards | <input type="checkbox"/> | Towels | <input type="checkbox"/> |
| Reels | <input type="checkbox"/> | Transfer papers: | |
| Textile reels | <input type="checkbox"/> | Gold transfer paper | <input type="checkbox"/> |
| Ribbons | <input type="checkbox"/> | Silver transfer paper | <input type="checkbox"/> |
| Ribbon blocks | <input type="checkbox"/> | Utensils | <input type="checkbox"/> |
| Rolls: | | Wallpaper | <input type="checkbox"/> |
| Adding machine rolls | <input type="checkbox"/> | Wall tile | <input type="checkbox"/> |
| Telegraph tape rolls | <input type="checkbox"/> | Wash cloths | <input type="checkbox"/> |
| Teletype paper rolls | <input type="checkbox"/> | Wastebaskets | <input type="checkbox"/> |
| Sacks: | | Wrapping paper | <input type="checkbox"/> |
| Multi-wall sacks | <input type="checkbox"/> | Writing paper | <input type="checkbox"/> |

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

- | | | | |
|-------------------------------|--------------------------|----------------------------|--------------------------|
| Agriculture | <input type="checkbox"/> | Financial | <input type="checkbox"/> |
| Commercial | <input type="checkbox"/> | Government Service | <input type="checkbox"/> |
| Business Service | <input type="checkbox"/> | Industrial | <input type="checkbox"/> |
| Food and Beverage | <input type="checkbox"/> | Insurance | <input type="checkbox"/> |
| Lodging Service | <input type="checkbox"/> | Legal | <input type="checkbox"/> |
| Personal Service | <input type="checkbox"/> | Library | <input type="checkbox"/> |
| Printing and Publishing | <input type="checkbox"/> | Medical Service | <input type="checkbox"/> |
| Repair Service | <input type="checkbox"/> | Military | <input type="checkbox"/> |
| Sales | <input type="checkbox"/> | Nonprofit | <input type="checkbox"/> |
| Communications | <input type="checkbox"/> | Office Service | <input type="checkbox"/> |
| Conservation | <input type="checkbox"/> | Recreation | <input type="checkbox"/> |
| Construction | <input type="checkbox"/> | Social Service | <input type="checkbox"/> |
| Correctional | <input type="checkbox"/> | Subsurface and Space | <input type="checkbox"/> |
| Educational | <input type="checkbox"/> | Transportation | <input type="checkbox"/> |
| Entertainment | <input type="checkbox"/> | Utilities | <input type="checkbox"/> |
| Exhibition Center | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

PETROLEUM AND NATURAL GAS EXPLORATION

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Plans, directs, and coordinates:

Research activities to develop:

- Improved methods and instruments for use in petroleum exploration
- New methods and techniques for improving drilling and production operations

Engineering studies to determine:

- Need for new or improved tool design
- Methods for improving well production

Geological studies and explorations of earth formations to locate gas or oil deposits

Geophysical surveys and prospecting operations to locate gas and oil deposits

Other (specify)

Supervises and coordinates activities of, workers engaged in:

Setting up and operating instruments and equipment at exploration site

Computing data on subsurface rock strata from instrument readings

Obtaining data on competitors oil and gas exploration and development activities

Mapping exploration and production areas of company

Conducting research studies

Building or fabricating new tools, equipment, or instruments

Other (specify)

Plans:

Use of directional drilling techniques and tools

Methods of drilling to:

Maintain verticality of bore hole

Plug and redrill crooked holes

Drill to oil bearing strata not located below drilling rig

Research programs

Prospecting activities

Other (specify)

Determines:

Area of geophysical prospecting in which to conduct research

Desirable location for exploratory drilling operations

Potential productivity of gas or oil in formation

Mineral content and physical characteristics of samples

Hydrocarbon content in samples

Exact time of reception of sound waves

Elevations of terrain

Characteristics of terrain

Other (specify)

Directs:

Preparation of charts or profiles from compiled data

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WHAT THE WORKER DOES—Continued

- | | | | |
|--|--------------------------|--|--------------------------|
| Crews in drilling shallow exploratory boreholes | <input type="checkbox"/> | Subsurface surveys | <input type="checkbox"/> |
| Collection of cores, cuttings, and fluid samples for analysis | <input type="checkbox"/> | Graphs | <input type="checkbox"/> |
| Laying out, setting up, and connecting of: | | Data to reveal substructures likely to contain petroleum deposits | <input type="checkbox"/> |
| Recording devices and equipment | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Cables | <input type="checkbox"/> | Records data from observations | <input type="checkbox"/> |
| Electrodes | <input type="checkbox"/> | Verifies accuracy of computations | <input type="checkbox"/> |
| Instrument panels | <input type="checkbox"/> | Cleans cores or breaks off outside surfaces to remove drilling mud | <input type="checkbox"/> |
| Positioning of instruments | <input type="checkbox"/> | Examines cores under ultraviolet light for presence of oil | <input type="checkbox"/> |
| Shooting of explosives in shot hole | <input type="checkbox"/> | Heats cores to drive off vapors and measures volume of condensates | <input type="checkbox"/> |
| Setting up of telephone or short-wave communications equipments | <input type="checkbox"/> | Studies well logs | <input type="checkbox"/> |
| Changes in methods and procedures | <input type="checkbox"/> | Examines aerial photographs | <input type="checkbox"/> |
| Mapping of areas | <input type="checkbox"/> | Estimates oil reserves in proven or prospective fields | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Measures: | |
| Initiates and directs experiments to: | | Resistance of earth formations to electrical charge | <input type="checkbox"/> |
| Perfect prospecting procedures | <input type="checkbox"/> | Sonar, electrical, or radioactive characteristics of boreholes | <input type="checkbox"/> |
| Explore possibility of new theories | <input type="checkbox"/> | Dimension and direction of borehole | <input type="checkbox"/> |
| Develop new or improved prospecting instruments | <input type="checkbox"/> | Inclination of geological strata | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Computes or calculates: | | Consults with: | |
| Data on variations in: | | Management personnel | <input type="checkbox"/> |
| Gravity pull | <input type="checkbox"/> | Field personnel | <input type="checkbox"/> |
| Resistivity to electrical charges | <input type="checkbox"/> | Field laboratory personnel | <input type="checkbox"/> |
| Magnetic attraction of different earth formations | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Differences in readings at base reference points and other locations | <input type="checkbox"/> | Drives truck to transport equipment and instruments to work site | <input type="checkbox"/> |
| Time intervals of sound waves from data | <input type="checkbox"/> | Unloads equipment, instruments, and explosives | <input type="checkbox"/> |
| Inclination of borehole from data | <input type="checkbox"/> | Guides drill pipe, casings, or instruments into hole | <input type="checkbox"/> |
| Variations in physical forces at various locations | <input type="checkbox"/> | Loads shot hole with explosives | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Tamps charge of explosives in hole, using sand or water | <input type="checkbox"/> |
| Evaluates: | | Moves controls to: | |
| Observations | <input type="checkbox"/> | Set off explosive charge | <input type="checkbox"/> |
| Recordings | <input type="checkbox"/> | Send electrical current through electrodes into earth | <input type="checkbox"/> |
| Results of geophysical surveys | <input type="checkbox"/> | Start recording instruments when they reach bottom of hole | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Interprets: | | Adjusts instruments to: | |
| Seismograms for isolating individual sound waves | <input type="checkbox"/> | Eliminate electrical interference from earth's currents | <input type="checkbox"/> |
| Findings to evaluate productive potential of formation | <input type="checkbox"/> | Eliminate weather conditions | <input type="checkbox"/> |
| Mud analysis logs for professional personnel | <input type="checkbox"/> | Obtain specified operating conditions | <input type="checkbox"/> |
| Data from: | | | |
| Topographical surveys | <input type="checkbox"/> | | |
| Well logs | <input type="checkbox"/> | | |
| Geophysical data | <input type="checkbox"/> | | |

WHAT THE WORKER DOES—Continued

- | | | | |
|--|--------------------------|--|--------------------------|
| Obtain specified type of recording | <input type="checkbox"/> | Profiles | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Reads dials, gages, and meters | <input type="checkbox"/> | Prepares: | |
| Records readings | <input type="checkbox"/> | Charts of time and depth profiles | <input type="checkbox"/> |
| Develops negatives of photographically
recorded sound waves | <input type="checkbox"/> | Contour maps from computed data | <input type="checkbox"/> |
| Prints: | | Diagrams | <input type="checkbox"/> |
| Photographic charts | <input type="checkbox"/> | Profiles | <input type="checkbox"/> |
| Copies of recorded graphs | <input type="checkbox"/> | Cross sections | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Surface and subsurface maps | <input type="checkbox"/> |
| Locates and marks sites for conducting
geophysical prospecting activities | <input type="checkbox"/> | Maps of exploratory and production areas | <input type="checkbox"/> |
| Diagnoses causes of malfunctioning
instruments and equipment | <input type="checkbox"/> | Recommendations | <input type="checkbox"/> |
| Refers to schematic drawings to locate
source of malfunction | <input type="checkbox"/> | Reports | <input type="checkbox"/> |
| Repairs instruments and equipment | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Corrects readings to: | | Analyzes: | |
| Allow for elevation, latitude, and
irregularities of terrain | <input type="checkbox"/> | Seismograph readings | <input type="checkbox"/> |
| Conform with physical characteristics, as: | | Core samples for: | |
| Weathering of surface strata | <input type="checkbox"/> | Porosity | <input type="checkbox"/> |
| Surface velocities | <input type="checkbox"/> | Permeability | <input type="checkbox"/> |
| Earth elevation | <input type="checkbox"/> | Oil | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Water saturation | <input type="checkbox"/> |
| Correlates: | | Combustible gas content | <input type="checkbox"/> |
| Readings taken at various locations | <input type="checkbox"/> | Amount of gas by volume | <input type="checkbox"/> |
| Data | <input type="checkbox"/> | Salinity of drilling mud | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Fluid in samples for chemical content | <input type="checkbox"/> |
| Plots: | | Other (specify) | <input type="checkbox"/> |
| Gradients | <input type="checkbox"/> | Recommends: | |
| Curves | <input type="checkbox"/> | Modification of shot depths | <input type="checkbox"/> |
| | | Location for positioning sound recorder
devices | <input type="checkbox"/> |
| | | Revisement of prospecting procedures | <input type="checkbox"/> |
| | | Actions on oil and gas leases and contracts | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | | | |
|-----------------------------|--------------------------|----------------------------------|--------------------------|
| Management | <input type="checkbox"/> | Surveyors | <input type="checkbox"/> |
| Superintendent | <input type="checkbox"/> | Geologists | <input type="checkbox"/> |
| Engineering Personnel | <input type="checkbox"/> | Physicists | <input type="checkbox"/> |
| Supervisors | <input type="checkbox"/> | Field Laboratory Personnel | <input type="checkbox"/> |
| Drillers | <input type="checkbox"/> | Mechanics | <input type="checkbox"/> |
| Party Chief | <input type="checkbox"/> | Helpers | <input type="checkbox"/> |
| Observers | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Computer Personnel | <input type="checkbox"/> | | |

EDUCATION AND TRAINING

Record an "X" to indicate education and training required.

- | | | | |
|-------------------|--------------------------|----------------------|--------------------------|
| Elementary | <input type="checkbox"/> | Junior College | <input type="checkbox"/> |
| High School | <input type="checkbox"/> | College | <input type="checkbox"/> |

EDUCATION AND TRAINING—Continued

Vocational School On-the-job Training
 Technical School Other (specify)

SUBJECTS AND COURSES

Record an "X" after subjects and courses that develop skills for the occupation.

Applied Science	<input type="checkbox"/>	Mathematical Analysis	<input type="checkbox"/>
Cartography	<input type="checkbox"/>	Mathematics of Physics and Engineering	<input type="checkbox"/>
Care and Use of Tools	<input type="checkbox"/>	Trigonometry	<input type="checkbox"/>
Care and Use of Instruments	<input type="checkbox"/>	Mechanics:	
Chemistry:		Fluid Mechanics	<input type="checkbox"/>
Applied Chemistry	<input type="checkbox"/>	Mechanics of Materials	<input type="checkbox"/>
Analytical Chemistry	<input type="checkbox"/>	Petroleum Engineering:	
Inorganic Chemistry	<input type="checkbox"/>	Introduction to Petroleum Technology	<input type="checkbox"/>
Qualitative Analysis	<input type="checkbox"/>	Properties of Reservoir Rocks	<input type="checkbox"/>
Drafting	<input type="checkbox"/>	Fluid Flow Through Porous Rocks:	
Elements of:		Single Phase Flow	<input type="checkbox"/>
Electrical Engineering	<input type="checkbox"/>	Multiphase Flow	<input type="checkbox"/>
Electronics Engineering	<input type="checkbox"/>	Properties of Reservoir Fluids	<input type="checkbox"/>
Supervision	<input type="checkbox"/>	Introduction to Reservoir Engineering	<input type="checkbox"/>
Geology-Geophysics:		Reserve Estimations	<input type="checkbox"/>
Applied Physics	<input type="checkbox"/>	Formation Evaluation	<input type="checkbox"/>
Earth Physics	<input type="checkbox"/>	Methods of Estimating Reserves:	
Exploratory Physics	<input type="checkbox"/>	Well Logging	<input type="checkbox"/>
Fundamentals of:		Volumetric Material Balance	<input type="checkbox"/>
Mechanics	<input type="checkbox"/>	Oil and Gas Land Valuation	<input type="checkbox"/>
Heat	<input type="checkbox"/>	Engineering Appraisal	<input type="checkbox"/>
Sound	<input type="checkbox"/>	Drilling Technology and Subsurface Method:	
Optics	<input type="checkbox"/>	Theory and Practice in Drilling	
Electricity	<input type="checkbox"/>	Technology	<input type="checkbox"/>
Magnetism	<input type="checkbox"/>	Mechanical Properties of Reservoir	
General Geophysics	<input type="checkbox"/>	Rocks	<input type="checkbox"/>
Geomorphology	<input type="checkbox"/>	Properties of Drilling Fluids	<input type="checkbox"/>
Geotectonics	<input type="checkbox"/>	Oil Production Technology	<input type="checkbox"/>
Historical Geology	<input type="checkbox"/>	Subsurface Methods:	
Modern Concepts in Geological Sciences	<input type="checkbox"/>	Analysis and Correlation of	<input type="checkbox"/>
Marine Geology	<input type="checkbox"/>	Subsurface Data from Cores	<input type="checkbox"/>
Mineralogy	<input type="checkbox"/>	Electrical Well Logging	<input type="checkbox"/>
Micropaleontology	<input type="checkbox"/>	Directional and Dip Surveys	<input type="checkbox"/>
Optical Mineralogy	<input type="checkbox"/>	Production Tests	<input type="checkbox"/>
Paleontology	<input type="checkbox"/>	Map Construction:	
Petrology	<input type="checkbox"/>	Structural Thickness Maps	<input type="checkbox"/>
Physics of Earth's Interior	<input type="checkbox"/>	Porosity Maps	<input type="checkbox"/>
Physical Geology	<input type="checkbox"/>	Productivity of Permability Contour	
Stratigraphy and Sedimentation	<input type="checkbox"/>	Maps	<input type="checkbox"/>
Structural Geology	<input type="checkbox"/>	Cross Section Maps	<input type="checkbox"/>
Introduction to:		Subsurface Methods Practice	<input type="checkbox"/>
Engineering Design	<input type="checkbox"/>	Drilling Mud Technology:	
Engineering Geology	<input type="checkbox"/>	Functions of Drilling Fluids	<input type="checkbox"/>
Study of Engineering	<input type="checkbox"/>	Properties of Drilling Fluids:	
Mathematics:		Physical Properties	<input type="checkbox"/>
Algebra	<input type="checkbox"/>	Chemical Properties	<input type="checkbox"/>
Arithmetic	<input type="checkbox"/>	Colloidal Properties	<input type="checkbox"/>
Calculus	<input type="checkbox"/>	Chemical Treatment	<input type="checkbox"/>

SUBJECTS AND COURSES—Continued

- | | | | |
|--|--------------------------|---|--------------------------|
| Mechanical Effects | <input type="checkbox"/> | Advanced Calculation Methods: | |
| Flow Characteristics | <input type="checkbox"/> | Numerical Analyses | <input type="checkbox"/> |
| Test Procedures | <input type="checkbox"/> | Statistical Analyses | <input type="checkbox"/> |
| Interpretation | <input type="checkbox"/> | Operational Methods | <input type="checkbox"/> |
| Petroleum Reservoir Engineering: | | Fluid Flow Through Porous Media: | |
| Basic Concepts | <input type="checkbox"/> | Capillary Effects | <input type="checkbox"/> |
| Analytical Methods | <input type="checkbox"/> | Gravity Effects | <input type="checkbox"/> |
| Application of Hydrodynamic Theory | <input type="checkbox"/> | Mechanisms of: | |
| Principles of Interpretation of | | Miscible Displacement Processes | <input type="checkbox"/> |
| Measurements: | | Immiscible Displacement Processes | <input type="checkbox"/> |
| Electrical Well Logging Methods | <input type="checkbox"/> | Surveying | <input type="checkbox"/> |
| Nonelectrical Well Logging Methods | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

- | | | | |
|-------------------------------------|--------------------------|---|--------------------------|
| Machines: | | Electrical prospecting equipment | <input type="checkbox"/> |
| Air compressors | <input type="checkbox"/> | Gravity prospecting equipment | <input type="checkbox"/> |
| Diesel: | | Magnetic prospecting equipment | <input type="checkbox"/> |
| Engines | <input type="checkbox"/> | Nuclear prospecting equipment | <input type="checkbox"/> |
| Winches | <input type="checkbox"/> | Short wave radio equipment | <input type="checkbox"/> |
| Metalworking machines: | | Seismographic prospecting equipment | <input type="checkbox"/> |
| Brakes | <input type="checkbox"/> | Sound detection devices | <input type="checkbox"/> |
| Drill presses | <input type="checkbox"/> | Welding apparatus | <input type="checkbox"/> |
| Grinders | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Lathes | <input type="checkbox"/> | | |
| Shears | <input type="checkbox"/> | Work Aids: | |
| Mixers | <input type="checkbox"/> | Aerial photographs | <input type="checkbox"/> |
| Portable rotary drilling rig | <input type="checkbox"/> | Cores | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Drill cuttings | <input type="checkbox"/> |
| | | Drafting instruments | <input type="checkbox"/> |
| Tools: | | Drawings | <input type="checkbox"/> |
| Handtools: | | Engineering orders | <input type="checkbox"/> |
| Files | <input type="checkbox"/> | Field data sheets | <input type="checkbox"/> |
| Knives | <input type="checkbox"/> | Formulas | <input type="checkbox"/> |
| Screwdrivers | <input type="checkbox"/> | Measuring instruments: | |
| Scribers | <input type="checkbox"/> | Barometers | <input type="checkbox"/> |
| Punches | <input type="checkbox"/> | Ammeters | <input type="checkbox"/> |
| Pliers | <input type="checkbox"/> | Gravimeters | <input type="checkbox"/> |
| Shovels | <input type="checkbox"/> | Magnetometers | <input type="checkbox"/> |
| Wire strippers | <input type="checkbox"/> | Pendulum devices | <input type="checkbox"/> |
| Wrenches | <input type="checkbox"/> | Ohmmeters | <input type="checkbox"/> |
| Tongs | <input type="checkbox"/> | Torsion balances | <input type="checkbox"/> |
| Power handtools: | | Thermometers | <input type="checkbox"/> |
| Pneumatic wrenches | <input type="checkbox"/> | Seismograms | <input type="checkbox"/> |
| Pneumatic drills | <input type="checkbox"/> | Oscilloscopes | <input type="checkbox"/> |
| Electric drills | <input type="checkbox"/> | Shooting instructions | <input type="checkbox"/> |
| Soldering guns | <input type="checkbox"/> | Squares | <input type="checkbox"/> |
| Soldering irons | <input type="checkbox"/> | Tapes | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Manuals | <input type="checkbox"/> |
| | | Survey reports | <input type="checkbox"/> |
| Equipment: | | Signal generator | <input type="checkbox"/> |
| Amplifiers | <input type="checkbox"/> | Circuit diagrams | <input type="checkbox"/> |
| Electrical detonating devices | <input type="checkbox"/> | Conversion tables | <input type="checkbox"/> |
| Electrical generators | <input type="checkbox"/> | | |

PRODUCTS

Record an "X" to indicate products produced.

- | | | | |
|-------------------------------|--------------------------|----------------------------------|--------------------------|
| Charts | <input type="checkbox"/> | Survey reports: | |
| Diagrams | <input type="checkbox"/> | Geological survey reports | <input type="checkbox"/> |
| Maps: | | Geophysical survey reports | <input type="checkbox"/> |
| Terrain maps | <input type="checkbox"/> | Seismographic: | |
| Surface maps | <input type="checkbox"/> | Prints | <input type="checkbox"/> |
| Subsurface maps | <input type="checkbox"/> | Strips | <input type="checkbox"/> |
| Profile maps | <input type="checkbox"/> | Shooting reports | <input type="checkbox"/> |
| Cross section maps | <input type="checkbox"/> | Photographic prints | <input type="checkbox"/> |
| Subsurface contour maps | <input type="checkbox"/> | Scouting reports | <input type="checkbox"/> |

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

- | | | | |
|-------------------------------|--------------------------|----------------------------|--------------------------|
| Agriculture | <input type="checkbox"/> | Financial | <input type="checkbox"/> |
| Commercial | <input type="checkbox"/> | Government Service | <input type="checkbox"/> |
| Business Service | <input type="checkbox"/> | Industrial | <input type="checkbox"/> |
| Food and Beverage | <input type="checkbox"/> | Insurance | <input type="checkbox"/> |
| Lodging Service | <input type="checkbox"/> | Legal | <input type="checkbox"/> |
| Personal Service | <input type="checkbox"/> | Library | <input type="checkbox"/> |
| Printing and Publishing | <input type="checkbox"/> | Medical Service | <input type="checkbox"/> |
| Repair Service | <input type="checkbox"/> | Military | <input type="checkbox"/> |
| Sales | <input type="checkbox"/> | Nonprofit | <input type="checkbox"/> |
| Communications | <input type="checkbox"/> | Office Service | <input type="checkbox"/> |
| Conservation | <input type="checkbox"/> | Recreation | <input type="checkbox"/> |
| Construction | <input type="checkbox"/> | Social Service | <input type="checkbox"/> |
| Correctional | <input type="checkbox"/> | Subsurface and Space | <input type="checkbox"/> |
| Educational | <input type="checkbox"/> | Transportation | <input type="checkbox"/> |
| Entertainment | <input type="checkbox"/> | Utilities | <input type="checkbox"/> |
| Exhibition Center | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

PETROLEUM AND NATURAL GAS PRODUCTION

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates activities concerned with:

- Drilling exploratory wells to locate gas or oil deposits
- Drilling oil or gas wells in a proven oilfield
- Producing oil and gas from operating wells
- Treating gas or oil to remove impurities and recover by-products
- Providing technical oilfield services to solve drilling or production problems
- Other (specify)

Supervises, and coordinates activities of, workers engaged in:

Operating:

- Natural gas treating equipment at oilfield
- Crude oil treating equipment at oilfield
- Drilling equipment to drill for gas or oil
- Digging and pipelaying machines to build oilfield pipelines

Erecting:

- Derricks and drilling rigs for drilling operations
- Oilfield buildings to house machines and machinery

Installing:

- Oilfield machinery and equipment
- Pumps, valves, separators, and meters in oilfield pipeline

Providing:

- Gun perforating services
- Well cleaning services
- Electrical well logging services
- Well surveying services
- Well shooting services

Pumping, gaging, and storing crude oil

Sampling and testing natural gas

Inspecting, testing, rebuilding, and salvaging surplus oilfield tools and equipment

Other (specify)

Reviews or analyses:

Job proposals

Work orders

Drilling schedules and reports

Well production reports

Gas treating plant reports

Crude oil treating reports

Work progress reports

Maintenance and repair requests

Pumping and gaging reports

Dispatching reports

Other (specify)

WHAT THE WORKER DOES—Continued

Plans:

- Production schedules for wells to meet proration quotas
- Treatment plant schedules
- Methods and procedures for solving well production or drilling problems
- Schedules for maintenance and repair work
- Manpower and man-hour requirements for specific jobs
- Material, tool, machine, and equipment needs
- Installation of buildings, machinery, and equipment at well site
- Methods and procedures for servicing wells or drill holes
- Methods and procedures for increasing well production
- Other (specify)

Confers with:

- Supervisory personnel about:
 - Well repressurizing methods and procedures
 - Changes in pumping methods or operations to obtain optimum production
 - Drilling operations
 - Well servicing operations
- Management personnel about:
 - Nature of drilling or production problem
 - Methods and procedures available for solving problem
 - Performance or progress data on jobs and operations
- Oil producing customers concerning:
 - Nature and type of services which can be supplied by company
 - Negotiating contract for services
 - Other (specify)

Recommends:

- Revision of current procedures to control costs and increase production efficiency
- Utilization of outside contractors to provide services or perform jobs
- Use of company employees to perform work
- Personnel actions such as promotions, discharges, or disciplinary actions
- Other (specify)

Coordinates:

- Department activities with those of other departments

- Pumping and treating activities with production activities
- Activities of workers and field crews
- Other (specify)

Trains workers in:

- Drilling methods and procedures
- Operation of machinery, machines, and equipment
- Tasks of specific job
- Observance of safety practices
- Other (specify)

Assigns workers to specific duties

- Gives worker specific work directions concerning assigned duties

- Observes workers in performance of duties for compliance with work directions

- Interprets technical data for workers

- Enforces worker compliance with safety rules, regulations, and practices

- Evaluates work performance of workers

- Requisitions materials, tools, equipment, and machinery

Prepares:

- Drilling schedules and reports
- Manpower allocations for specific jobs
- Cost estimates for job or work proposals
- Well production schedules and reports
- Oil and gas treatment schedules and reports
- Pumping and gaging reports
- Repair and maintenance reports
- Other (specify)

Erects:

- Drilling derricks and rigs
- Buildings and racks at well site
- Oil holding tanks in oilfield
- Other (specify)

- Hoists and positions structural members and secures them in place

- Attaches crown block to structural members

- Installs hoisting engines and other machinery

- Reeves cable through blocks

- Levels and aligns machinery and engines

- Installs ladders, fittings, valves, and other appurtenances

- Other (specify)

- Sets up and operates drilling rigs
- Operates machines or machinery

WHAT THE WORKER DOES—Continued

- Controls operation of processing or treating equipment
- Tends machines or equipment
- Drives and controls operations of machines and special mobile equipment
- Assists in operation of machines, machinery or equipment
- Other (specify)

- Moves levers, throttles, or controls to:
 - Regulate stroke of beam on cable drilling rig
 - Regulate speed of rotation of rotary table turning tools in borehole
 - Start or stop operation of machines or equipment
 - Adjust operation of machines or equipment to obtain specified performance
 - Lower or raise:
 - Tools into or from borehole
 - End of pipe string into or from borehole
 - Casings into or from well
 - Instruments into and from well
 - Explosive charges or perforating equipment into holes
 - Detonate or ignite charge in well or borehole
 - Other (specify)

- Sets controls for specified:
 - Pressure
 - Flow rates
 - Temperature
 - Vacuum
 - Speed of rotation
 - Other (specify)

- Selects and attaches to cable or drill string:
 - Drilling bits
 - Cleaning out tools
 - Fishing tools
 - Recording instruments
 - Explosive charges
 - Perforating tools
 - Other (specify)

- Examines:
 - Drill cuttings for effectiveness of drilling bit
 - Cores or cuttings to ascertain nature of strata at bottom of borehole
 - Operation of slush pumps to insure prescribed circulation and consistency of drilling mud
 - Pipelines, flanges, and valves for leaks
 - Other (specify)

- Observes:
 - Gages, instruments, or recorders to ascertain:
 - Depth of borehole
 - Pressure at bottom of well
 - Presence of gas or oil in mud
 - Pressure of tools on bottom of well
 - Other (specify)
 - Tightens or loosens threaded joints of pipe sections
 - Assembles and disassembles casings
 - Places curved metal wedges around pipe string to hold string in place
 - Guides sections of pipe sections into or from well
 - Mixes or blends:
 - Well acids for acidizing wells
 - Drilling mud to cool bit
 - Chemicals for injection into well
 - Cement for concreting casings
 - Other (specify)
 - Gages amount of oil in tanks, using calibrated tape
 - Charges:
 - Gun perforators with explosive charges
 - Carriers with specified chemicals
 - Torpedos, dynamite, or nitro into borehole
 - Other (specify)
 - Tests:
 - Natural gas for:
 - BTU values
 - Flame candlepower
 - Specific gravity
 - Proportion of various elements
 - Cores for presence and type of oil bearing strata
 - Oil or gas to insure removal of impurities
 - Steel tubing, casings, and drill pipe for internal flaws
 - Other (specify)
 - Unloads materials, supplies, and tools at well site
 - Digs ditches for laying of pipe
 - Grades ground for erection of buildings, rigs, or tanks
 - Analyzes samples of fluids in well
 - Charts pressure of fluid which reveals strata formation
 - Keeps records of:
 - Footage drilled
 - Materials used
 - Location and nature of strata at each depth

WHAT THE WORKER DOES—Continued

- | | | | |
|---|--------------------------|--|--------------------------|
| Well production | <input type="checkbox"/> | Measures parts for dimensional specifications | <input type="checkbox"/> |
| Processing operations | <input type="checkbox"/> | Repairs or replaces defective part | <input type="checkbox"/> |
| Gaging of tanks | <input type="checkbox"/> | Assembles parts | <input type="checkbox"/> |
| Pumping operations | <input type="checkbox"/> | Sets specified clearances between moving parts | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Tests unit for specified operational performance | <input type="checkbox"/> |
| Repairs or overhauls machines or equipment: | | Other (specify) | <input type="checkbox"/> |
| Disassembles malfunctioning unit | <input type="checkbox"/> | | |
| Cleans and inspects parts | <input type="checkbox"/> | | |

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | | | |
|----------------------|--------------------------|---------------------------------|--------------------------|
| Management | <input type="checkbox"/> | Field Crew | <input type="checkbox"/> |
| Superintendent | <input type="checkbox"/> | Laboratory Personnel | <input type="checkbox"/> |
| Supervisors | <input type="checkbox"/> | Service Company Personnel | <input type="checkbox"/> |
| Drillers | <input type="checkbox"/> | Pipeline Personnel | <input type="checkbox"/> |
| Operators | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Helpers | <input type="checkbox"/> | | |

EDUCATION AND TRAINING

Record an "X" to indicate education and training required.

- | | | | |
|-------------------------|--------------------------|---------------------------|--------------------------|
| Elementary | <input type="checkbox"/> | Apprenticeship | <input type="checkbox"/> |
| High School | <input type="checkbox"/> | On-the-job Training | <input type="checkbox"/> |
| Junior College | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Vocational School | <input type="checkbox"/> | | |

SUBJECTS AND COURSES

Record an "X" to indicate subjects and courses that develop skills for the occupation.

- | | | | |
|--|--------------------------|--|--------------------------|
| Related Subjects and Courses: | | Field Mapping | <input type="checkbox"/> |
| Practical Arithmetic | <input type="checkbox"/> | Subsurface Mapping | <input type="checkbox"/> |
| Mathematics | <input type="checkbox"/> | Well Correlations | <input type="checkbox"/> |
| Applied Science | <input type="checkbox"/> | Historical Geology | <input type="checkbox"/> |
| Applied Physics | <input type="checkbox"/> | Geophysical Methods | <input type="checkbox"/> |
| Production Analysis | <input type="checkbox"/> | Electric Log Interpretation | <input type="checkbox"/> |
| Slide Rule | <input type="checkbox"/> | Rotary Drilling | <input type="checkbox"/> |
| Mechanical Drawing | <input type="checkbox"/> | Drilling Equipment | <input type="checkbox"/> |
| Map Drawing | <input type="checkbox"/> | Drilling Mud | <input type="checkbox"/> |
| Blueprint Reading | <input type="checkbox"/> | Prime Movers | <input type="checkbox"/> |
| Use and Care of Tools | <input type="checkbox"/> | Circulating Systems | <input type="checkbox"/> |
| Use and Care of Instruments | <input type="checkbox"/> | Derricks and Masts | <input type="checkbox"/> |
| Physical Properties of Metals and Alloys | <input type="checkbox"/> | Drilling Mud Make-up Control | <input type="checkbox"/> |
| Heat Treating | <input type="checkbox"/> | Capacity and Design of: | |
| Destructive and Non-destructive Testing | <input type="checkbox"/> | Derricks | <input type="checkbox"/> |
| Human Relations | <input type="checkbox"/> | Masts | <input type="checkbox"/> |
| Organization and Supervision | <input type="checkbox"/> | Trusses | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Elements of Surveying for Use in: | |
| Petroleum Technology: | | Location of Boundaries | <input type="checkbox"/> |
| Identification and Classification of Minerals and Rocks from Well Cuttings | <input type="checkbox"/> | Location of Wells | <input type="checkbox"/> |
| | | Building Well Foundations | <input type="checkbox"/> |
| | | Mapping of Directionally Drilled Wells | <input type="checkbox"/> |

SUBJECTS AND COURSES—Continued

Casing Program Design	<input type="checkbox"/>	Field Identification of Sucker Rod Problem	<input type="checkbox"/>
Effect of Additives and Contaminates on:		Temperature Correction Factors	<input type="checkbox"/>
Setting Time of Cement Slurries	<input type="checkbox"/>	Types of Corrosion and Control Methods	<input type="checkbox"/>
Ultimate Strength of Cement Slurries	<input type="checkbox"/>	Directional Drilling	<input type="checkbox"/>
Volumetric and Pressure Problems in:		Casing and Cementing Wells	<input type="checkbox"/>
Hydrating Wells	<input type="checkbox"/>	Drilling Procedures	<input type="checkbox"/>
Acidizing Wells	<input type="checkbox"/>	Acidizing Wells	<input type="checkbox"/>
Measurement in Reservoir of:		Hydrating Wells	<input type="checkbox"/>
Porosity	<input type="checkbox"/>	Shooting Procedures	<input type="checkbox"/>
Permeability	<input type="checkbox"/>	Gravel Packing	<input type="checkbox"/>
Saturation	<input type="checkbox"/>	Well-Head Connections	<input type="checkbox"/>
Single Phase Flow Rates	<input type="checkbox"/>	Tubing Well	<input type="checkbox"/>
Effects of Phase Mixtures	<input type="checkbox"/>	Factors of Low-Artificial Flow Methods	<input type="checkbox"/>
Effects of Chokes on Flow Rates in Tubing	<input type="checkbox"/>	Oil and Gas Separators	<input type="checkbox"/>
Orifice and Positive Displacement Meters	<input type="checkbox"/>	Pumping Wells	<input type="checkbox"/>
Oilfield Instruments and Controls	<input type="checkbox"/>	Field Stock Tanks	<input type="checkbox"/>
Gravity Determination	<input type="checkbox"/>	Subsurface Repairs	<input type="checkbox"/>

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

Machines:

Compressors:	
Air compressors	<input type="checkbox"/>
Gas compressors	<input type="checkbox"/>
Centrifuges	<input type="checkbox"/>
Catheads	<input type="checkbox"/>
Drilling machinery:	
Cable drilling	<input type="checkbox"/>
Rotary drilling	<input type="checkbox"/>
Draw works	<input type="checkbox"/>
Engines:	
Diesel powered	<input type="checkbox"/>
Electric powered	<input type="checkbox"/>
Gasoline powered	<input type="checkbox"/>
Steam powered	<input type="checkbox"/>
Elevators	<input type="checkbox"/>
Hoists	<input type="checkbox"/>
Pumps:	
Acid pumps	<input type="checkbox"/>
Centrifugal pumps	<input type="checkbox"/>
Cement pumps	<input type="checkbox"/>
Injection pumps	<input type="checkbox"/>
Mud pumps	<input type="checkbox"/>
Positive displacement pumps	<input type="checkbox"/>
Turbine pumps	<input type="checkbox"/>
Vacuum pumps	<input type="checkbox"/>
Winches	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>

Tools:

Handtools:	
Bars	<input type="checkbox"/>
Hack saws	<input type="checkbox"/>

Hammers	<input type="checkbox"/>
Pick axes	<input type="checkbox"/>
Pliers	<input type="checkbox"/>
Screwdrivers	<input type="checkbox"/>
Scrapers	<input type="checkbox"/>
Shovels	<input type="checkbox"/>
Sledges	<input type="checkbox"/>
Punches	<input type="checkbox"/>
Scribers	<input type="checkbox"/>
Tongs	<input type="checkbox"/>
Wire brushes	<input type="checkbox"/>
Wrenches	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>

Pneumatic tools:

Wrenches	<input type="checkbox"/>
Drills	<input type="checkbox"/>
Grease gun	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>

Oilfield tools:

Drilling bits	<input type="checkbox"/>
Fishing tools	<input type="checkbox"/>
Swabbing tools	<input type="checkbox"/>
Cleaning tools	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>

Equipment:

Absorption equipment	<input type="checkbox"/>
Condensers	<input type="checkbox"/>
Steam boilers	<input type="checkbox"/>
Heaters	<input type="checkbox"/>
Furnaces	<input type="checkbox"/>

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- | | | | |
|------------------------------------|--------------------------|--------------------------------------|--------------------------|
| Scales | <input type="checkbox"/> | Reports: | |
| Absorption towers | <input type="checkbox"/> | Operational reports | <input type="checkbox"/> |
| Fractionating towers | <input type="checkbox"/> | Drilling progress reports | <input type="checkbox"/> |
| Stills | <input type="checkbox"/> | Pumping reports | <input type="checkbox"/> |
| Cooling towers | <input type="checkbox"/> | Treating reports | <input type="checkbox"/> |
| Stripping towers | <input type="checkbox"/> | Production reports | <input type="checkbox"/> |
| Meters: | | Gaging reports | <input type="checkbox"/> |
| Orifice meters | <input type="checkbox"/> | Laboratory reports | <input type="checkbox"/> |
| Positive displacement meters | <input type="checkbox"/> | Status reports | <input type="checkbox"/> |
| Separators | <input type="checkbox"/> | Repair and maintenance reports | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Sketches | <input type="checkbox"/> |
| Work Aids: | | Field maps | <input type="checkbox"/> |
| Charts | <input type="checkbox"/> | Work orders | <input type="checkbox"/> |
| Borehole charts | <input type="checkbox"/> | Job proposals | <input type="checkbox"/> |
| Blueprints | <input type="checkbox"/> | Requisitions | <input type="checkbox"/> |
| Logs | <input type="checkbox"/> | Instruments: | |
| Well logs | <input type="checkbox"/> | Micrometers | <input type="checkbox"/> |
| Schedules: | | Calipers | <input type="checkbox"/> |
| Drilling schedules | <input type="checkbox"/> | Gage blocks | <input type="checkbox"/> |
| Production schedules | <input type="checkbox"/> | Manometer | <input type="checkbox"/> |
| Pumping schedules | <input type="checkbox"/> | Calibration | <input type="checkbox"/> |
| Work schedules | <input type="checkbox"/> | Electric well logging | <input type="checkbox"/> |
| Inspection schedules | <input type="checkbox"/> | Rules | <input type="checkbox"/> |
| Testing schedules | <input type="checkbox"/> | Feeler gages | <input type="checkbox"/> |
| Gaging schedules | <input type="checkbox"/> | Squares | <input type="checkbox"/> |
| Water injection schedules | <input type="checkbox"/> | Plumb line | <input type="checkbox"/> |
| | | Straight edge | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |

PRODUCTS AND SERVICES

Record an "X" to indicate products produced or services rendered.

- | | | | |
|---|--------------------------|--|--------------------------|
| Crude petroleum and natural gas: | | Other (specify) | <input type="checkbox"/> |
| Crude petroleum: | | Gas and oilfield contractor services: | |
| Crude oil | <input type="checkbox"/> | Well services: | |
| Shale oil | <input type="checkbox"/> | Acidizing services | <input type="checkbox"/> |
| Natural gas | <input type="checkbox"/> | Bailing services | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Cementing well casing services | <input type="checkbox"/> |
| Natural gas liquids: | | Chemical treating services | <input type="checkbox"/> |
| Natural butane | <input type="checkbox"/> | Cleaning services | <input type="checkbox"/> |
| Casing head butane and propane | <input type="checkbox"/> | Foundation building services | <input type="checkbox"/> |
| Cycle condensates | <input type="checkbox"/> | Foundation grading services | <input type="checkbox"/> |
| Isobutane | <input type="checkbox"/> | Logging services | <input type="checkbox"/> |
| Natural liquefied petroleum gases | <input type="checkbox"/> | Perforating services | <input type="checkbox"/> |
| Natural gasoline | <input type="checkbox"/> | Plugging services | <input type="checkbox"/> |
| Natural propane | <input type="checkbox"/> | Pumping services | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Shooting services | <input type="checkbox"/> |
| Well drilling contractor services: | | Surveying services | <input type="checkbox"/> |
| Gas and oil well directional drilling | | Swabbing services | <input type="checkbox"/> |
| services | <input type="checkbox"/> | Derrick building services | <input type="checkbox"/> |
| Dryhole drilling services | <input type="checkbox"/> | Gas compressing services | <input type="checkbox"/> |
| Gas and oil well redrilling services | <input type="checkbox"/> | Lease tank erecting, cleaning, repairing | |
| Gas and oil well spudding in services | <input type="checkbox"/> | services | <input type="checkbox"/> |
| | | Mud services for drilling | <input type="checkbox"/> |

PRODUCTS AND SERVICES—Continued

- | | | | |
|--------------------------------|--------------------------|---|--------------------------|
| Oil sampling services | <input type="checkbox"/> | Cutting services | <input type="checkbox"/> |
| Well casings, tubes, and rods: | | Rig building, repairing, dismantling services | <input type="checkbox"/> |
| Pulling services | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Running services | <input type="checkbox"/> | | |

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

- | | | | |
|-------------------------------|--------------------------|----------------------------|--------------------------|
| Agriculture | <input type="checkbox"/> | Financial | <input type="checkbox"/> |
| Commercial: | | Government Service | <input type="checkbox"/> |
| Business Service | <input type="checkbox"/> | Industrial | <input type="checkbox"/> |
| Food and Beverage | <input type="checkbox"/> | Insurance | <input type="checkbox"/> |
| Lodging Service | <input type="checkbox"/> | Legal | <input type="checkbox"/> |
| Personal Service | <input type="checkbox"/> | Library | <input type="checkbox"/> |
| Printing and Publishing | <input type="checkbox"/> | Medical Service | <input type="checkbox"/> |
| Repair Service | <input type="checkbox"/> | Military | <input type="checkbox"/> |
| Sales | <input type="checkbox"/> | Nonprofit | <input type="checkbox"/> |
| Communications | <input type="checkbox"/> | Office Service | <input type="checkbox"/> |
| Conservation | <input type="checkbox"/> | Recreation | <input type="checkbox"/> |
| Construction | <input type="checkbox"/> | Social Service | <input type="checkbox"/> |
| Correctional | <input type="checkbox"/> | Subsurface and Space | <input type="checkbox"/> |
| Educational | <input type="checkbox"/> | Transportation | <input type="checkbox"/> |
| Entertainment | <input type="checkbox"/> | Utilities | <input type="checkbox"/> |
| Exhibition Center | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

PETROLEUM REFINING

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates activities concerned with:

- Processing crude oil at oilfield facility to remove natural gas and impurities
- Petroleum company's marine terminal operations
- Transfer and routing of oil or petroleum products in refinery pipelines
- Processing and handling of asphalt and road oil products
- Straight run distillation of crude oil
- Thermal cracking of crude oil
- Catalytic cracking of crude oil and gas-oil stocks
- Solvent processing of oil and gas-oil stocks
- Alkylation processing of oil and gas-oil stocks
- Processing petroleum tars into coke
- Polymerization of gaseous hydrocarbons
- Reforming of hydrocarbons
- Treating of petroleum products or converting impurities into byproducts
- Other (specify)

Supervises, and coordinates activities of, workers engaged in:

- Extracting natural gas, sediment, and chemicals from crude oil at oilfield
- Loading, unloading, gaging, and testing operations at a marine terminal
- Bulk handling in refinery pipelines of crude oil, in-process materials, and products
- Thermal cracking of crude oil into fractional petroleum distillates
- Catalytic cracking of crude oil into fractional petroleum distillates
- Thermal cracking of heavy oil distillates into gas-oil stocks
- Solvent processing of products to remove impurities
- Hydrogenation of products to remove impurities and recover byproducts
- Catalytic hydrogenation of low octane naphthenic stocks
- Catalytic hydrogenation and cracking of gas-oil stocks
- Alkylating low octane stock to produce high octane blending stock
- Blending of additives with products to improve quality and performance
- Coking petroleum tars
- Other (specify)

- Confers with management or supervisory personnel concerning availability of materials
- Plans manpower and equipment requirements for scheduled production
- Prepares work schedules
- Assigns workers to specific duties

- Gives workers directions concerning assigned duties
- Requisitions materials and supplies for specified processing activities
- Coordinates processing activities with other activities of refinery
- Inspects equipment and machines in operation for functional efficiency
- Compares readings of instruments on units with central control room instruments
- Enforces established work procedures, company regulations and safety rules

WHAT THE WORKER DOES—Continued

- Trains workers in operation and control of processing equipment and machinery
- Requests repair or maintenance on equipment, machines, and instrumentation
- Evaluates individual workers' performance
- Initiates personnel actions, such as promotion discharge, or disciplinary action
- Prepares activity, production, and processing reports
- Resolves employee grievances or submits them to higher authority
- Other (specify)

- Reads or reviews:
 - Schedules
 - Specifications
 - Operating logs
 - Laboratory reports
 - On-station test results
 - Production orders
 - On-line computer processing unit print-outs
 - Other (specify)
- Determines:
 - Processing procedures and sequences
 - Line-up of system and equipment in processing units
 - Operational settings on processing equipment and machines
 - Routing of inprocess and finished products
 - Adjustments to equipment or processing changes
 - Maintenance and repair needs on equipment and machines
 - Other (specify)
- Sets up and operates machines
- Controls operation of processing units from remote control central station
- Controls operation of processing unit at unit
- Monitors processing controlled by on-line computer
- Tends machines and equipment
- Assists worker in operating of processing unit
- Other (specify)

- Sets controls or automatic control mechanisms for specified:
 - Material flow rates
 - Processing temperatures
 - Pressures
 - Vacuum
 - Processing cycles
 - Timing cycles
 - Material levels in units and tanks
 - Material volumes
 - Amounts of catalysts or additives
 - Recirculation of materials
 - Other (specify)
- Turns handwheels, switches, or opens piping crossconnection valves to:
 - Line up equipment for processing operations
 - Direct flow of materials in pipelines
 - Regulate outside located controls on towers and columns
 - Maintain specified levels in units or tanks
 - Bleed lines for obtaining samples of materials or clean residue from lines
 - Other (specify)
- Monitors:
 - Processing activities and operating equipment controlled by on-line computer
 - Central control room instruments, lights, and alarms
 - Instrumentation and controls on equipment
 - Operation of towers and columns
 - Other (specify)
- Analyzes:
 - Computer printouts on processing activities
 - On-station tests of material samples
 - Laboratory reports
 - Operating log entries
 - Readings on recorders, instruments, and gages
 - Other (specify)
- Moves controls, timers, or remote control devices to:
 - Start and stop operations
 - Adjust, control, and maintain within specified limits processing variables
 - Change processing procedures or sequences

WHAT THE WORKER DOES--Continued

- | | | | |
|---|--------------------------|---|--------------------------|
| Obtain product meeting specifications | <input type="checkbox"/> | End point | <input type="checkbox"/> |
| Reroute materials | <input type="checkbox"/> | Boiling point | <input type="checkbox"/> |
| Reprocess materials | <input type="checkbox"/> | Presence of impurities | <input type="checkbox"/> |
| Recirculate materials | <input type="checkbox"/> | Chemical reaction | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Conformance with processing specifications | <input type="checkbox"/> |
| Calculates or computes: | | Other (specify) | <input type="checkbox"/> |
| Amounts of additives required for blending products | <input type="checkbox"/> | Obtains samples of materials for testing | <input type="checkbox"/> |
| Quantity of materials in ships' tanks, storage tanks, or tankcars | <input type="checkbox"/> | Gages materials in tanks | <input type="checkbox"/> |
| Volume of products or material pumped through pipelines | <input type="checkbox"/> | Takes temperature of materials in tanks | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Refers to conversion tables or charts for data used in calculations | <input type="checkbox"/> |
| Conducts laboratory tests on: | | Reads instruments, meters, and gages | <input type="checkbox"/> |
| Crude oil for chemical content and presence of foreign matter | <input type="checkbox"/> | Records readings and operating data in logbook | <input type="checkbox"/> |
| Inprocess materials at various processing stages | <input type="checkbox"/> | Weights materials used as additives or catalysts | <input type="checkbox"/> |
| Finished products for conformance with specifications | <input type="checkbox"/> | Patrols lines and equipment areas to locate leaks or equipment malfunctions | <input type="checkbox"/> |
| Antiknock qualities of grades and blends of gasoline | <input type="checkbox"/> | Lubricates and oils machines and machinery | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Makes minor repairs on machines or pipeline valves | <input type="checkbox"/> |
| Performs on-station tests on samples for: | | Reports malfunctions to supervisory personnel | <input type="checkbox"/> |
| American Petroleum Institute specific gravity reading | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | | | |
|-------------------------|--------------------------|----------------------------|--------------------------|
| Management | <input type="checkbox"/> | Laboratory Personnel | <input type="checkbox"/> |
| Supervisors | <input type="checkbox"/> | Pipeline Personnel | <input type="checkbox"/> |
| Other Supervisors | <input type="checkbox"/> | Training Personnel | <input type="checkbox"/> |
| Operators | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Helpers | <input type="checkbox"/> | | |

EDUCATION AND TRAINING

Record an "X" to indicate education and training required.

- | | | | |
|-------------------------|--------------------------|---------------------------|--------------------------|
| Elementary | <input type="checkbox"/> | Technical School | <input type="checkbox"/> |
| High School | <input type="checkbox"/> | On-the-job Training | <input type="checkbox"/> |
| Junior College | <input type="checkbox"/> | Military Training | <input type="checkbox"/> |
| Vocational School | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

SUBJECTS AND COURSES

Record an "X" to indicate subjects or courses that develop skills for the occupation.

- | | | | |
|--------------------------------------|--------------------------|-------------------------------|--------------------------|
| Related Subjects and Courses: | | Applied Chemistry | <input type="checkbox"/> |
| Practical Arithmetic | <input type="checkbox"/> | Properties of Materials | <input type="checkbox"/> |
| Applied Science | <input type="checkbox"/> | Production Analysis | <input type="checkbox"/> |

SUBJECTS AND COURSES—Continued

- | | | | |
|--|--------------------------|---|--------------------------|
| Formulas | <input type="checkbox"/> | Pumps: | |
| Industrial Instrumentation | <input type="checkbox"/> | Centrifugal Pumps | <input type="checkbox"/> |
| Applied Physics | <input type="checkbox"/> | Positive Displacement Pumps | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Pump and Compressor Drivers: | |
| Petroleum Processing Unit Operator: | | AC Motor | <input type="checkbox"/> |
| Practical Distillation: | | Steam Turbines | <input type="checkbox"/> |
| What are Hydrocarbons | <input type="checkbox"/> | Combustion Gas Turbines | <input type="checkbox"/> |
| How Distillation Works | <input type="checkbox"/> | Internal Combustion Engines | <input type="checkbox"/> |
| Fractionating Equipment | <input type="checkbox"/> | Couplings, Gear Trains, and V-Belt | |
| Use of Fractionating Equipment | <input type="checkbox"/> | Drivers | <input type="checkbox"/> |
| Normal Operations | <input type="checkbox"/> | Steam Engines and Steam | |
| Normal Operating Situations | <input type="checkbox"/> | Reciprocating Pumps | <input type="checkbox"/> |
| Abnormal Operations | <input type="checkbox"/> | Significance of Process Control | |
| Abnormal Operating Situations | <input type="checkbox"/> | Tests | <input type="checkbox"/> |
| Nature of Heat: | | Cost Reduction for Operators | <input type="checkbox"/> |
| Heat and Temperature | <input type="checkbox"/> | Fire Fighting: | |
| Heat Transfer | <input type="checkbox"/> | Fuels and Combustion | <input type="checkbox"/> |
| Fuels and Combustion | <input type="checkbox"/> | Water | <input type="checkbox"/> |
| Furnace Operation: | | Foams and Extinguishers | <input type="checkbox"/> |
| The Furnace | <input type="checkbox"/> | Tactics and Strategy | <input type="checkbox"/> |
| Combustion and Air Control | <input type="checkbox"/> | Accident Control Techniques | <input type="checkbox"/> |
| Startup and Shutdown | <input type="checkbox"/> | Valves | <input type="checkbox"/> |
| Furnace Situations | <input type="checkbox"/> | Cooling Towers | <input type="checkbox"/> |
| Mechanics of Fluids: | | Chemistry and Petroleum: | |
| An Introduction to Fluids | <input type="checkbox"/> | Atoms and Molecules | <input type="checkbox"/> |
| The Behavior of Gases | <input type="checkbox"/> | The Alkane Family | <input type="checkbox"/> |
| Statics | <input type="checkbox"/> | Isomerism of Hydrocarbons | <input type="checkbox"/> |
| Fluids in Motion | <input type="checkbox"/> | Alkenes, Alkadienes, Alkyenes | <input type="checkbox"/> |
| Compressors: | | Cyclic Hydrocarbons | <input type="checkbox"/> |
| Introduction to Compression | <input type="checkbox"/> | Refining of Petroleum | <input type="checkbox"/> |
| Positive Displacement Compressors | <input type="checkbox"/> | Cracking Catalysts | <input type="checkbox"/> |
| Centrifugal Compressors | <input type="checkbox"/> | Isomerization-Catalytic Reforming | <input type="checkbox"/> |
| Instrumentation for Operators: | | Chemistry of Petroleum Products | |
| Measuring Instruments | <input type="checkbox"/> | In Use | <input type="checkbox"/> |
| Pressure and Temperature | <input type="checkbox"/> | Petrochemicals | <input type="checkbox"/> |
| Liquid Level and Flow | <input type="checkbox"/> | Instrumental Analysis | <input type="checkbox"/> |
| Analytical Instruments | <input type="checkbox"/> | Principles of Polymerization | <input type="checkbox"/> |
| Process Control Instruments | <input type="checkbox"/> | Mass Transfer | <input type="checkbox"/> |
| Controllers and Control Modes | <input type="checkbox"/> | Nature of Petroleum | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

- | | | | |
|-----------------------------|--------------------------|-----------------------------|--------------------------|
| Machines: | | Blending tanks | <input type="checkbox"/> |
| Agitators | <input type="checkbox"/> | Centrifuges | <input type="checkbox"/> |
| Blowers | <input type="checkbox"/> | Turbines: | |
| Compressors: | | Steam turbines | <input type="checkbox"/> |
| Air compressors | <input type="checkbox"/> | Gas turbines | <input type="checkbox"/> |
| Gas compressors | <input type="checkbox"/> | Pumps: | |
| Filter press | <input type="checkbox"/> | Positive displacement | <input type="checkbox"/> |
| Vacuum rotary filters | <input type="checkbox"/> | Reciprocating | <input type="checkbox"/> |
| Mixers: | | Turbine | <input type="checkbox"/> |
| Mixing tanks | <input type="checkbox"/> | Centrifugal | <input type="checkbox"/> |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS Continued

- Air Ejectors
- Vacuum pumps
- Other (specify)
- Tools:**
- Wrenches
- Pipe wrenches
- Bars
- Scrowdrivers
- Pliers
- Other (specify)
- Equipment:**
- Absorption equipment
- Accumulators
- Clarifiers
- Concentrators
- Condensers
- Convertors
- Diffusors
- Distilling equipment:**
- Continuous processing stills
- Semi-continuous processing stills
- Computer controlled processing stills
- Coking stills
- Driers
- Evaporators
- Furnaces:**
- Still furnaces
- Waste gas furnaces
- Heaters
- Heat Exchangers
- Boilers
- Driers
- Spray Driers
- Stabilizers
- Rechargers
- Retorts
- Reactors
- Catalytic reactor equipment
- Weighing scales:**
- Platform scales
- Analytical scales
- Automatic weighing equipment
- Electronic processing equipment:**
- On-line processing computers
- Sample analyzers
- Blending control computers
- Processing towers and columns:**
- Fractionating towers
- Absorption towers
- Quenching towers
- Cooling towers
- Purification towers
- Stripping columns

- Extractor columns
- Gas scrubbers
- Oil scrubbers
- Electrostatic precipitators
- Water recycling equipment
- Other (specify)
- Work aids:**
- Meters:**
- Hydrometers
- Calorimeters
- Salinometers
- Manometers
- Viscometers
- Ph Meters
- Flowmeters
- Refractometers
- Titrometers
- Turbidometer
- Chromatographs
- Thermometers
- Manuals:**
- Operating manuals
- Safety manuals
- Procedures manuals
- Processing manuals
- Schedules:**
- Production schedules
- Operating schedules
- Loading schedules
- Receiving schedules
- Routing schedules
- Work schedules
- Specifications:**
- Processing specifications
- Refining specifications
- Product specifications
- Operating logs
- Laboratory reports
- Formulas:**
- Treating formulas
- Blending formulas
- Compounding formulas
- Synton vibrators
- Charts
- Graphs
- Recording indicators
- Automatic alarms
- Panelboard lights
- Test logs
- Engine Knock comparators
- Calculators
- Calibrated measuring tapes
- Laboratory glass equipment
- Conversion tables

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- | | | | |
|----------------------------|--------------------------|---------------------------------------|--------------------------|
| Conversion charts | <input type="checkbox"/> | Valve cutouts | <input type="checkbox"/> |
| Computer printouts | <input type="checkbox"/> | Drawings | <input type="checkbox"/> |
| Training equipment: | | Air actuated training equipment | <input type="checkbox"/> |
| Processing simulator | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Pump cutouts | <input type="checkbox"/> | | |

PRODUCTS

Record an "X" to indicate product processed.

- | | | | |
|---------------------------------|--------------------------|--------------------------------------|--------------------------|
| Alkylates | <input type="checkbox"/> | Smudging fuels | <input type="checkbox"/> |
| Aromatic chemicals | <input type="checkbox"/> | Road oils | <input type="checkbox"/> |
| Asphalt | <input type="checkbox"/> | Petroleum coke | <input type="checkbox"/> |
| Asphalt materials | <input type="checkbox"/> | Transmission fluids | <input type="checkbox"/> |
| Carbon black | <input type="checkbox"/> | Hydrocarbon fluids | <input type="checkbox"/> |
| Liquefied petroleum gas: | | Sulfur | <input type="checkbox"/> |
| Propane | <input type="checkbox"/> | Solvents | <input type="checkbox"/> |
| Butane | <input type="checkbox"/> | Petrolatums | <input type="checkbox"/> |
| Lubricating greases | <input type="checkbox"/> | Petrochemical materials | <input type="checkbox"/> |
| Lubricating oils: | | Methane: | |
| Detergent oils | <input type="checkbox"/> | Methyl alcohol | <input type="checkbox"/> |
| Parafin based oils | <input type="checkbox"/> | Acetylene | <input type="checkbox"/> |
| Wax free oils | <input type="checkbox"/> | Ethylene | <input type="checkbox"/> |
| Mineral oils | <input type="checkbox"/> | Polyethylene | <input type="checkbox"/> |
| Illuminating oils | <input type="checkbox"/> | Propylene | <input type="checkbox"/> |
| Fuels: | | Butylene: | |
| Gasoline: | | Isobutylene | <input type="checkbox"/> |
| High octane gasoline | <input type="checkbox"/> | Butadiene | <input type="checkbox"/> |
| Aviation gasoline | <input type="checkbox"/> | Napthalene: | |
| Ethyl added gasoline | <input type="checkbox"/> | Cyclohexane | <input type="checkbox"/> |
| Low lead gasoline | <input type="checkbox"/> | Benzene | <input type="checkbox"/> |
| Lead free gasoline | <input type="checkbox"/> | Benzol | <input type="checkbox"/> |
| Jet engine fuels | <input type="checkbox"/> | Methylcyclohexane | <input type="checkbox"/> |
| Domestic fuel oils | <input type="checkbox"/> | Toulene | <input type="checkbox"/> |
| Diesel engine fuel | <input type="checkbox"/> | Petroleum tars | <input type="checkbox"/> |
| Industrial fuel oil | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

- | | | | |
|-------------------------------|--------------------------|--------------------------|--------------------------|
| Agriculture | <input type="checkbox"/> | Educational | <input type="checkbox"/> |
| Commercial: | | Entertainment | <input type="checkbox"/> |
| Business Service | <input type="checkbox"/> | Exhibition Center | <input type="checkbox"/> |
| Food and Beverage | <input type="checkbox"/> | Financial | <input type="checkbox"/> |
| Lodging Service | <input type="checkbox"/> | Government Service | <input type="checkbox"/> |
| Personal Service | <input type="checkbox"/> | Industrial | <input type="checkbox"/> |
| Printing and Publishing | <input type="checkbox"/> | Insurance | <input type="checkbox"/> |
| Repair Service | <input type="checkbox"/> | Legal | <input type="checkbox"/> |
| Sales | <input type="checkbox"/> | Library | <input type="checkbox"/> |
| Communications | <input type="checkbox"/> | Medical Service | <input type="checkbox"/> |
| Conservation | <input type="checkbox"/> | Military | <input type="checkbox"/> |
| Construction | <input type="checkbox"/> | Nonprofit | <input type="checkbox"/> |
| Correctional | <input type="checkbox"/> | Office Service | <input type="checkbox"/> |

ENVIRONMENTAL SETTING—Continued

- | | | | |
|----------------------------|--------------------------|-----------------------|--------------------------|
| Recreation | <input type="checkbox"/> | Transportation | <input type="checkbox"/> |
| Social Service | <input type="checkbox"/> | Utilities | <input type="checkbox"/> |
| Subsurface and Space | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

SAWMILL AND PLANING MILL WORK

Inventory

WHAT THE WORKER DOES

Below are listed activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates activities concerned with operations of a:

- Sawmill
- Planing mill
- Speciality products mill
- Other (specify)

Supervises, and coordinates activities of, workers engaged in:

- Unloading, ponding, and sorting logs according to size and species
- Processing of logs to produce lumber and wood products
- Planing of lumber to produce surfaced and dimensional lumber products
- Sharpening of saws, knives, and cutters used in mill operations
- Processing of logs or lumber into specialty forest products
- Drying of green cut lumber in kilns
- Other (specify)

Reviews or studies:

- Sales orders
- Production reports
- Order status reports
- Pending orders
- Material, tool, and equipment requisitions
- Log and pond storage reports
- Planing mill schedules
- Master control inventory sheet
- Maintenance and repair reports
- Kiln drying schedules
- Other (specify)

Plans or determines:

- Mill schedules
- Production schedules
- Work priority and sequence schedules
- Log species and sizes to be processed
- Manpower requirements
- Machine and equipment utilization
- Manpower utilization
- Machine and equipment requirements
- Maintenance and repair activities
- Other (specify)

Prepares:

- Work schedules
- Work assignments

WHAT THE WORKER DOES—Continued

- Planning schedules
 - Stock control sheets
 - Physical inventory reports
 - Kiln drying reports
 - Production status reports
 - Repair and maintenance reports
 - Revisions of production schedules due to production line breakdowns
 - Other (specify)
- Coordinates:**
- Mill operations with other operations of company
 - Flow of materials through production operations
 - Worker activities to obtain optimum efficiency
 - Other (specify)
- Assigns workers specific duties**
- Gives workers directions concerning assigned duties**
- Inspects mill machines and equipment for functional efficiency**
- Enforces worker compliance with:**
- Established work procedures
 - Company regulations
 - Safety rules and practices
 - Other (specify)
- Trains workers in:**
- Setup of machines
 - Operation of machines, machinery, and equipment
 - Control of equipment
 - Assigned duties
 - Other (specify)
- Evaluates worker performance**
- Initiates and carries out personnel actions**
- Other (specify)**
- Sets up machines for other workers**
- Sets up and operates machines or equipment**
- Operates machines**
- Controls operation of automatic machines or equipment**
- Drives and controls operation of machines**
- Tends:**
- Preset up or automatic machines
 - Conveyors, elevators, or tables to handle material
 - Feeds materials into machines manually
 - Offbears materials from machines or material handling equipment
- Other (specify)**
- Other (specify)**
- Installs, aligns, and secures in position:**
- Saws
 - Knives
 - Cutters
 - Pressure rolls
 - Guides
 - Stops
 - Grinders
 - Spray guns
 - Other (specify)
- Presses pushbutton controls on machine console or control panelboard to:**
- Activate power supply to machine controls
 - Start machine and machine auxiliaries
 - Move workpiece into position for machine operations
 - Feed workpiece into cutting tools
 - Feed cutting tools into workpiece
 - Set machine guides, stops, and tools for specified operations
 - Adjust position of tools
 - Reprocess workpiece not meeting specifications
 - Move workpiece away from machine after operations are completed
 - Other (specify)
- Moves levers or controls or depresses pedals to:**
- Set:**
- Tension rolls
 - Pressure rolls
 - Specified temperature
 - Specified humidity
 - Specified circulation of air
- Align workpiece against:**
- Feed guides
 - Holding fingers
 - Measuring marks
 - Aligning mechanisms
- Regulate:**
- Speed of tools
- Lowering and raising of:**
- Guides
 - Stops
 - Holding devices or clamps
 - Elevators
 - Stacking tables
 - Unstacking tables
 - Dogs
 - Routing of material on material handling system
 - Other (specify)

WHAT THE WORKER DOES—Continued

Observes:

- Operations of machines for malfunctions
- Indicating instruments or gages for insuring readings are within operational limitations
- Flow of material on material handling equipment to:
 - Adjust speed to prevent jams or backlogs
 - Detect misalignment of material
 - Detect waste material or foreign matter
- Log, cant, slab, or timber to determine cuts for producing highest grade product
- Level of solutions in spray tanks
- Other (specify)

- Sorting classification
- Reprocessing instructions
- Identifying date on top of:
 - Tied bundles of lumber
 - Stacks of lumber
 - Wrapped packages of lumber
 - Other (specify)

Signals workers to:

- Start processing operations
- Remove loaded kiln car
- Reset ratchets on log
- Stop machine operations
- Other (specify)

Inspects or examines:

- Logs or cut lumber for:
 - Knots or knot clusters
 - Pitch lines
 - Disease damage
 - Cracks
 - Mechanical processing flaws
 - Nails or other metal objects
 - Need of reprocessing
 - Determining grade and quality
- Markings on lumber for:
 - Species of wood
 - Grade and quality code
 - Quantity and dimensions
- Cutting tools for:
 - Broken or bent teeth
 - Need of replacement
 - Uniformity of sharpening operations
 - Burrs
 - Need of swaging teeth
 - Need of tensioning
 - Other (specify)

Opens valves to:

- Allow coolant to flow on knives during grinding operations
- Spray preservative or non-staining material on lumber
- Allow flow of water in controlling humidity in kilns
- Other (specify)

Patches finished lumber to improve appearance or quality

- Cuts out defective section, using power tools
- Prepares patch of size, species, and grain pattern
- Glues patch in place
- Sands patch
- Pulls lumber from material handling equipment
- Stacks lumber on carts
- Separates stacks with stickers
- Ties lumber into bundles of specified number of boards
- Converts dimensions of logs to board feet, using conversion chart
- Calculates percentage of moisture in lumber
- Straightens materials on material handling equipment
- Throws salvage or waste lumber into chipper or hog machine conveyor
- Files burrs or nicks from knives or cutters
- Lubricates machines
- Cleans machines and work area
- Notifies supervisory personnel of estimated time of withdrawal of lumber from kilns
- Tensions band, circular saws, and knives
- Other (specify)

Measures:

- Moisture content of lumber in kiln
- Diameter and length of logs for estimating volume of board feet
- Oversize cants to determine length to be sawed off
- Planed dimensional lumber for conformance with specifications
- Other (specify)

Marks:

- Symbols on lumber to indicate:
 - Grade

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | | | |
|-------------------------|--------------------------|-------------------------|--------------------------|
| Management | <input type="checkbox"/> | Machine Operators | <input type="checkbox"/> |
| Superintendent | <input type="checkbox"/> | Machine Helpers | <input type="checkbox"/> |
| Supervisors | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Other Supervisors | <input type="checkbox"/> | | |

EDUCATION AND TRAINING

Record an "X" to indicate education and training requirements.

- | | | | |
|----------------------|--------------------------|---------------------------|--------------------------|
| Elementary | <input type="checkbox"/> | Vocational School | <input type="checkbox"/> |
| High School | <input type="checkbox"/> | Technical School | <input type="checkbox"/> |
| Junior College | <input type="checkbox"/> | On-the-job Training | <input type="checkbox"/> |
| College | <input type="checkbox"/> | | |

SUBJECTS AND COURSES

Record an "X" to indicate subjects and courses that develop worker skills.

- | | | |
|--|--|---|
| Subjects and Courses:
Drawing and Blueprint Interpretation <input type="checkbox"/>
Fundamentals of Cabinet Making <input type="checkbox"/>
Practical Arithmetic <input type="checkbox"/>
Wood Technology:
Uses of Wood Species <input type="checkbox"/>
Characteristics of Woods <input type="checkbox"/>
Limitations of Various Woods <input type="checkbox"/>
Grades of Woods <input type="checkbox"/>
Woodworking Machines:
Operation of Machines <input type="checkbox"/>
Maintenance of Machines <input type="checkbox"/>
Use and Care of:
Woodworking Handtools <input type="checkbox"/>
Power Tools <input type="checkbox"/> | | Cutting Tool Grinding and Maintenance <input type="checkbox"/>
Wood Seasoning <input type="checkbox"/>
Laying Out Techniques <input type="checkbox"/>
Use and Care of Measuring Instruments <input type="checkbox"/>
Wood Finishing Procedures <input type="checkbox"/>
Log Scaling <input type="checkbox"/>
Lumber Grading <input type="checkbox"/>
Log Handling and Lumber Carrying
Vehicles:
Maintenance of Vehicles <input type="checkbox"/>
Operation of Vehicles <input type="checkbox"/>
Elements of Supervision <input type="checkbox"/>
Human Relations <input type="checkbox"/>
Other (specify) <input type="checkbox"/> |
|--|--|---|

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate type and machines, tools, equipment, and work aids used.

- | | | |
|--|--|--|
| Type of machines:
Automatic <input type="checkbox"/>
Automatic set <input type="checkbox"/>
Console controlled <input type="checkbox"/>
Manual controlled <input type="checkbox"/>
Panel board controlled <input type="checkbox"/>
Other (specify) <input type="checkbox"/> | | Lathe type barker <input type="checkbox"/>
Ring type barker <input type="checkbox"/>
Chipper machine <input type="checkbox"/>
Compressors <input type="checkbox"/>
Grinding machines:
Circular saw grinder <input type="checkbox"/>
Knife grinder <input type="checkbox"/>
Hog machine <input type="checkbox"/>
Material handling machines:
Conveyors:
Bull chain <input type="checkbox"/>
Endless belt <input type="checkbox"/>
Roller:
Feed roller <input type="checkbox"/> |
| Machines:
Bandsaw sharpening machine <input type="checkbox"/>
Bandsaw stretching machine <input type="checkbox"/>
Barking machine:
Drum type barker <input type="checkbox"/>
Hydraulic type barker <input type="checkbox"/> | | |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

Offbearing conveyor	<input type="checkbox"/>	Screwdrivers	<input type="checkbox"/>
Transfer roller conveyor	<input type="checkbox"/>	Shovels	<input type="checkbox"/>
Transfer conveyor system	<input type="checkbox"/>	Wrenches	<input type="checkbox"/>
Elevators:	<input type="checkbox"/>	Power handtools:	
Chain dog elevators	<input type="checkbox"/>	Chainsaws:	<input type="checkbox"/>
Car lift elevators	<input type="checkbox"/>	Hand sanders	<input type="checkbox"/>
Fork car lift elevators	<input type="checkbox"/>	Routers	<input type="checkbox"/>
Table lift elevators	<input type="checkbox"/>	Hand held circular saws	<input type="checkbox"/>
Fork life trucks	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Hoists	<input type="checkbox"/>	Equipment:	
Lumber carriers	<input type="checkbox"/>	Driers:	
Lumber bundling machine	<input type="checkbox"/>	Drier ovens	<input type="checkbox"/>
Lumber packaging machine	<input type="checkbox"/>	Drying kilns	<input type="checkbox"/>
Lumber stacking machine	<input type="checkbox"/>	Drying drums	<input type="checkbox"/>
Lumber strapping machine	<input type="checkbox"/>	Furnaces	<input type="checkbox"/>
Planing machines	<input type="checkbox"/>	Metal detection device	<input type="checkbox"/>
Rail-transfer kiln car	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Saws:		Work Aids:	
Bandsaws:		Blueprints	<input type="checkbox"/>
Multi-bladed gang saw	<input type="checkbox"/>	Drawings	<input type="checkbox"/>
Adjustable multi-bladed bandsaw	<input type="checkbox"/>	Formulas	<input type="checkbox"/>
Horizontal bandsaw	<input type="checkbox"/>	Laboratory equipment:	
Circular saws:		Centrifuges	<input type="checkbox"/>
Cut-off saw	<input type="checkbox"/>	Driers	<input type="checkbox"/>
Double-end-trim saw	<input type="checkbox"/>	Grinders	<input type="checkbox"/>
Edger saw	<input type="checkbox"/>	Manuals	<input type="checkbox"/>
Multiple blade circular saw	<input type="checkbox"/>	Measuring devices:	
Table saw	<input type="checkbox"/>	Calipers	<input type="checkbox"/>
Trim saw	<input type="checkbox"/>	Moisture meters	<input type="checkbox"/>
Variable position circular saw	<input type="checkbox"/>	Protractors	<input type="checkbox"/>
Lath sawing machine	<input type="checkbox"/>	Rules	<input type="checkbox"/>
Sacking and weighing machine	<input type="checkbox"/>	Scaling stick	<input type="checkbox"/>
Sanding machine:		Scales	<input type="checkbox"/>
Belt sanders	<input type="checkbox"/>	Reports:	
Double-drum sander	<input type="checkbox"/>	Daily reports	<input type="checkbox"/>
Multi-drum sander	<input type="checkbox"/>	Operating reports	<input type="checkbox"/>
Pully sander	<input type="checkbox"/>	Production reports	<input type="checkbox"/>
Spray machines	<input type="checkbox"/>	Processing reports	<input type="checkbox"/>
Weighing and sacking machine	<input type="checkbox"/>	Tally tickets	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Schedules:	
Tools:		Kiln drying schedules	<input type="checkbox"/>
Handtools:		Production schedules	<input type="checkbox"/>
Files	<input type="checkbox"/>	Processing schedules	<input type="checkbox"/>
Hammers	<input type="checkbox"/>	Work schedules	<input type="checkbox"/>
Pickaroons	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Putty Knives	<input type="checkbox"/>		
Punches	<input type="checkbox"/>		

PRODUCTS

Record an "X" to indicate type of mill and mill product produced.

Type of mill:		Cooperage stock	<input type="checkbox"/>
Chipper	<input type="checkbox"/>	Excelsior	<input type="checkbox"/>

PRODUCTS—Continued

- | | | | |
|------------------------|--------------------------|--------------------------|--------------------------|
| Lathing | <input type="checkbox"/> | Flitches | <input type="checkbox"/> |
| Planing: | | Fuelwood | <input type="checkbox"/> |
| Hardwood | <input type="checkbox"/> | Kiln dried lumber | <input type="checkbox"/> |
| Softwood | <input type="checkbox"/> | Laminated decking | <input type="checkbox"/> |
| Sawmill: | | Lathing | <input type="checkbox"/> |
| Custom | <input type="checkbox"/> | Railroad ties | <input type="checkbox"/> |
| Hardwood | <input type="checkbox"/> | Sawdust | <input type="checkbox"/> |
| Softwood | <input type="checkbox"/> | Shakes | <input type="checkbox"/> |
| Special product | <input type="checkbox"/> | Shingles | <input type="checkbox"/> |
| Shingle | <input type="checkbox"/> | Siding | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Silo stock | <input type="checkbox"/> |
| | | Slabs | <input type="checkbox"/> |
| Products: | | Stickers | <input type="checkbox"/> |
| Cants | <input type="checkbox"/> | Surfaced lumber | <input type="checkbox"/> |
| Ceiling lumber | <input type="checkbox"/> | Timbers | <input type="checkbox"/> |
| Cooperage stock: | | Wood bark products | <input type="checkbox"/> |
| Headers | <input type="checkbox"/> | Wood blanks | <input type="checkbox"/> |
| Hoops | <input type="checkbox"/> | Wood blocks | <input type="checkbox"/> |
| Staves | <input type="checkbox"/> | Wood turnings | <input type="checkbox"/> |
| Cut stock | <input type="checkbox"/> | Wood chips | <input type="checkbox"/> |
| Dimension lumber | <input type="checkbox"/> | Wood vehicle stock | <input type="checkbox"/> |
| Excelsior | <input type="checkbox"/> | | |

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

- | | | | |
|-------------------------------|--------------------------|----------------------------|--------------------------|
| Agriculture | <input type="checkbox"/> | Financial | <input type="checkbox"/> |
| Commercial: | | Government Service | <input type="checkbox"/> |
| Business Service | <input type="checkbox"/> | Industrial | <input type="checkbox"/> |
| Food and Beverage | <input type="checkbox"/> | Insurance | <input type="checkbox"/> |
| Lodging Service | <input type="checkbox"/> | Legal | <input type="checkbox"/> |
| Personal Service | <input type="checkbox"/> | Library | <input type="checkbox"/> |
| Printing and Publishing | <input type="checkbox"/> | Medical Service | <input type="checkbox"/> |
| Repair Service | <input type="checkbox"/> | Military | <input type="checkbox"/> |
| Sales | <input type="checkbox"/> | Nonprofit | <input type="checkbox"/> |
| Communications | <input type="checkbox"/> | Office Service | <input type="checkbox"/> |
| Conservation | <input type="checkbox"/> | Recreation | <input type="checkbox"/> |
| Construction | <input type="checkbox"/> | Social Service | <input type="checkbox"/> |
| Correctional | <input type="checkbox"/> | Subsurface and Space | <input type="checkbox"/> |
| Educational | <input type="checkbox"/> | Transportation | <input type="checkbox"/> |
| Entertainment | <input type="checkbox"/> | Utilities | <input type="checkbox"/> |
| Exhibition Center | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

SHIP AND BOAT BUILDING AND REPAIRING

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity involved in the job being analyzed.

Directs and coordinates activities relating to:

Laying out, fabricating, and assembling:

- Fiberglass boats
- Aluminum boats
- Wooden boats
- Specific craftwork involved in building or repairing of:**
- Commercial or private ships or boats
- Naval vessels
- Other (specify)

Supervises, and coordinates activities of, workers engaged in:

- Planning craftwork
- Estimating costs of repairs or building of vessels
- Scheduling of craftwork in shop or aboard vessel
- Shopwork to:**
- Fabricate or manufacture vessels parts
- Repair or overhaul machines, machinery, or equipment
- Shipboard work to:**
- Assemble or install vessel's structural parts, machines, or equipment
- Overhaul or repair machines, machinery, equipment, and accessories
- Providing craft services to other crafts for accomplishing work
- Cleaning and painting of vessels structural parts and equipment
- Drydocking vessels and performing work for drydocking of vessels
- Other (specify)

Plans:

- Manpower requirements for accomplishing craftwork
- Worker schedules
- Procedures for performing work
- Services requirements from other crafts
- Shopwork priorities and sequences
- Shipboard craftwork priorities and schedules
- Training activities of shop and shipboard workers
- Quality control and assurance that work meets specifications
- Other (specify)

Reads, reviews, or studies:

- Production schedules
- Material specifications
- Work orders
- Blueprints, diagrams, or sketches
- Product model

WHAT THE WORKER DOES—Continued

- | | | | |
|---|--------------------------|--|--------------------------|
| Patterns and templates | <input type="checkbox"/> | Using solvents | <input type="checkbox"/> |
| Inspection reports | <input type="checkbox"/> | Using steam cleaning equipment | <input type="checkbox"/> |
| Rework orders | <input type="checkbox"/> | Sandblasting | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Washing, using pressure equipment | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |
| Determines: | | | |
| Layout of work | <input type="checkbox"/> | Paints surfaces of structures or equipment | |
| Machine operations required for producing | | using: | |
| product | <input type="checkbox"/> | Handbrushes | <input type="checkbox"/> |
| Setup of machines or equipment | <input type="checkbox"/> | Paint spraying equipment | <input type="checkbox"/> |
| Fabricating sequences | <input type="checkbox"/> | Paint rolling equipment | <input type="checkbox"/> |
| Assembly procedures and sequences | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Installation procedures and sequences | <input type="checkbox"/> | | |
| Repair, rework, or modification | | Prepares work schedules for workers | <input type="checkbox"/> |
| requirements | <input type="checkbox"/> | Assigns workers specific duties | <input type="checkbox"/> |
| Types of tests and testing equipment | | Gives work directions to workers concerning | |
| required | <input type="checkbox"/> | duties | <input type="checkbox"/> |
| Rigging materials and procedures for | | Interprets work orders, specifications, | |
| moving and placing loads | <input type="checkbox"/> | drawings, and technical data for workers | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Trains workers in: | |
| | | Craft duties | <input type="checkbox"/> |
| Establishes reference points and lines | | Operation of machines, machinery, and | |
| for use in: | | equipment | <input type="checkbox"/> |
| Laying out and lofting hull structures | <input type="checkbox"/> | Use of craft hand and power tools, jigs, | |
| Laying out of patterns and templates on | | and fixtures | <input type="checkbox"/> |
| materials | <input type="checkbox"/> | Advise workers on methods and procedures | |
| Positioning vessel over blocks in | | for solving work problems | <input type="checkbox"/> |
| drydocking operations | <input type="checkbox"/> | Coordinates craft activities with those | |
| Locating position for installation of | | of other crafts | <input type="checkbox"/> |
| structural components, machines, or | | Enforces worker compliance with established | |
| equipment | <input type="checkbox"/> | work procedures, regulations, and safety | |
| Other (specify) | <input type="checkbox"/> | rules | <input type="checkbox"/> |
| | | Evaluates worker performance | <input type="checkbox"/> |
| Sets up machines and equipment for other | | Recommends worker promotions, discharges, | |
| workers | <input type="checkbox"/> | and disciplinary actions | <input type="checkbox"/> |
| Sets up and operates machines and | | Requisitions machines, tools, and equipment | |
| equipment | <input type="checkbox"/> | and services of other crafts | <input type="checkbox"/> |
| Tends machines or equipment | <input type="checkbox"/> | Keeps production and worker records | <input type="checkbox"/> |
| Feeds materials into machines | <input type="checkbox"/> | Prepares and submits progress, activity, | |
| Offbears materials from machines | <input type="checkbox"/> | and accomplishment reports | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Prepares table of offsets for lofting | |
| | | operations | <input type="checkbox"/> |
| Installs, alines, and secures: | | Compares offset table with table listed on | |
| Die sets | <input type="checkbox"/> | blueprint | <input type="checkbox"/> |
| Bending rolls | <input type="checkbox"/> | Measures parts to insure conformance | |
| Forming rolls | <input type="checkbox"/> | with specifications | <input type="checkbox"/> |
| Stops | <input type="checkbox"/> | Marks material with fabricating data | <input type="checkbox"/> |
| Guides | <input type="checkbox"/> | Cuts materials into specified size | <input type="checkbox"/> |
| Holding fixtures and jigs | <input type="checkbox"/> | Signals workers to perform specific | |
| Shear blades | <input type="checkbox"/> | operations | <input type="checkbox"/> |
| Workpiece in fixture or jig | <input type="checkbox"/> | Gives hand signals for hoisting, moving, | |
| Other (specify) | <input type="checkbox"/> | and low ring operations | <input type="checkbox"/> |
| | | Packs pipe with material to prevent | |
| Cleans surfaces, tanks, or parts by: | | flattening during bending processes | <input type="checkbox"/> |
| Burning with blowtorch | <input type="checkbox"/> | Heats and bends piping | <input type="checkbox"/> |

WHAT THE WORKER DOES—Continued

- Bends, hammers, razes, and planishes sheetmetal stock into specified shape
- Tins metal piping to prevent galvanic or electrolytic action and corrosion
- Sights with transit to position vessel over keel and bilge blocks during drydocking
- Takes in or slacks off lines to position vessel during drydocking operations
- Starts or stops pumps to flood, or pump out water from drydock
- Moves cassion into or from mouth of drydock
- Retubes heat transfer or steam generating equipment
- Moves levers or controls to:
 - Start machine fabricating operations
 - Reset guides, stops, or roll clearances
 - Set length of stroke on ram mechanisms
 - Stop machines
 - Start auxiliary machines or equipment
 - Other (specify)

- Lays out:
- Outlines for constructing patterns, templates, or plugs
 - Fabricating data on material from blueprints
 - Templates or patterns on material
 - Other (specify)

- Builds or constructs:
- Templates, patterns, or molds
 - Wooden plugs (master patterns)
 - Framework and target for bending, shaping, and joining pipe
 - Holding fixtures or jigs for assembling parts
 - Keel and bilge blocks for drydocking
 - Other (specify)

- Reworks fabricated parts by:
- Filing
 - Scraping
 - Grinding
 - Chipping
 - Straightening
 - Bending
 - Planing
 - Other (specify)

- Positions parts for assembly in:
- Holding jig or fixture
 - Specified relationship to each other
 - Specified alinement
 - Other (specify)

- Fastens parts together using:
- Screws
 - Bolts
 - Rivets
 - Dowels
 - Solder
 - Welds
 - Brazing materials
 - Studs
 - Other (specify)

- Installs:
- Planking and decking on vessels
 - Insulating materials on vessels' sides below water line
 - Sheetmetal ventilating and air conditioning ducts
 - Piping systems in vessel
 - Glass in skylights, portholes, and other structures
 - Keel and bilge blocks on platform of drydock
 - Structural sheet parts in vessels
 - Main propulsion machinery, boilers, and auxiliary machinery and equipment
 - Electronic systems, equipment, and gear
 - Electrical equipment, conduits, wiring, and controls
 - Wooden paneling, ships' equipage, and other wood products
 - Deck covering materials on weather decks and other ships' spaces
 - Insulating materials on boilers, piping valves, and ducts
 - Shafting, bearing pedestals, and propellers
 - Weapon systems
 - Fire control systems
 - Vessels' rigging and weight handling gear
 - Hardware, trim, and gaskets
 - Clamps, beam clamps, pad eyes, and other rigging materials
 - Metal furniture and fixtures
 - Wood furniture and fixtures
 - Other (specify)

- Erects:
- Stages and staging for work operations
 - Antennas, masts, and booms
 - Other (specify)

- Operates portable pneumatic tools to:
- Chip or calk metal plates
 - Grind metal surfaces or edges

WHAT THE WORKER DOES—Continued

- | | | | |
|---|--------------------------|--|--------------------------|
| Drill holes | <input type="checkbox"/> | Rebuilds, rebricks, and insulates firesides | |
| Rivet structural steel or sheet metal ducts | <input type="checkbox"/> | of steam generating equipment | <input type="checkbox"/> |
| Countersink or ream holes | <input type="checkbox"/> | Fabricates canvas and other textile covers, | |
| Other (specify) | <input type="checkbox"/> | awnings, and sails | <input type="checkbox"/> |
| Tests: | | Attaches hoisting and pulling gear to lift, | |
| Electrical characteristics of wiring circuits, | | move, and position heavy loads | <input type="checkbox"/> |
| electrical or electronic equipment or | | Shapes, finishes, and installs wooden | |
| systems | <input type="checkbox"/> | masts, booms, and spars | <input type="checkbox"/> |
| Pressure vessels, piping, ship | | Applies plastics and cloth materials to form | |
| compartments, and tanks for leaks | <input type="checkbox"/> | fibre glass coverings | <input type="checkbox"/> |
| Machines, machinery, and equipment for | | Laminates and bends lumber to form | |
| operational performance | <input type="checkbox"/> | wooden ships parts | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Manufactures rigging materials for | |
| Disassembles and removes machines, | | moving loads | <input type="checkbox"/> |
| machinery, or equipment from vessels | <input type="checkbox"/> | Covers insulating materials with canvas, | |
| Disassembles, repairs, and reassembles | | cloth, or other materials | <input type="checkbox"/> |
| machines and equipment | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | | | |
|----------------------------|--------------------------|----------------------------------|--------------------------|
| Management | <input type="checkbox"/> | Helpers | <input type="checkbox"/> |
| General Supervisors | <input type="checkbox"/> | Ship's Personnel | <input type="checkbox"/> |
| Supervisors | <input type="checkbox"/> | Union Personnel | <input type="checkbox"/> |
| Craft Workers | <input type="checkbox"/> | Wage and Salary Personnel | <input type="checkbox"/> |
| Other Craft Workers | <input type="checkbox"/> | Employment Personnel | <input type="checkbox"/> |
| Planning Personnel | <input type="checkbox"/> | Military Liaison Personnel | <input type="checkbox"/> |
| Scheduling Personnel | <input type="checkbox"/> | Government Personnel | <input type="checkbox"/> |
| Estimates | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Apprentices | <input type="checkbox"/> | | |

EDUCATION AND TRAINING

Record an "X" to indicate education or training required.

- | | | | |
|---------------------------|--------------------------|------------------------------------|--------------------------|
| Elementary | <input type="checkbox"/> | On-the-job Training | <input type="checkbox"/> |
| High School | <input type="checkbox"/> | Military Training | <input type="checkbox"/> |
| Junior College | <input type="checkbox"/> | Apprenticeship (see apprenticeship | |
| Technical Training | <input type="checkbox"/> | listing) | <input type="checkbox"/> |
| Vocational Training | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

SHIP AND BOAT BUILDING AND REPAIR APPRENTICESHIPS

Record an "X" to indicate type of apprenticeship training.

- | | | | |
|----------------------------------|--------------------------|-------------------------|--------------------------|
| Boatbuilder, Wood | <input type="checkbox"/> | Shipwright | <input type="checkbox"/> |
| Coppersmith | <input type="checkbox"/> | Sailmaker | <input type="checkbox"/> |
| Joiner | <input type="checkbox"/> | Sheetmetal Worker | <input type="checkbox"/> |
| Loft Worker | <input type="checkbox"/> | Pipefitter | <input type="checkbox"/> |
| Pipe Foverer and Insulator | <input type="checkbox"/> | Boilermaker | <input type="checkbox"/> |
| Shipfitter | <input type="checkbox"/> | Marine Machinist | <input type="checkbox"/> |

SHIP AND BOAT BUILDING AND REPAIR APPRENTICESHIPS—Continued

- | | | | |
|----------------------------------|--------------------------|-----------------------------|--------------------------|
| Shipyard Painter | <input type="checkbox"/> | Welder | <input type="checkbox"/> |
| Shipyard Rigger | <input type="checkbox"/> | Welder-Fitter | <input type="checkbox"/> |
| Fire Control Mechanic | <input type="checkbox"/> | Shipyard Patternmaker | <input type="checkbox"/> |
| Machinist (Ships' weapons) | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Electronics Technician | <input type="checkbox"/> | | |

SUBJECTS AND COURSES

Record an "X" to indicate subjects or courses that develop skills for the occupation.

- | | | | |
|--|--------------------------|--|--------------------------|
| Craft Related Subjects and Courses: | | Testing | <input type="checkbox"/> |
| Shop Mathematics | <input type="checkbox"/> | Distilling Plants | <input type="checkbox"/> |
| Trade Science | <input type="checkbox"/> | Compressed Air and Gas Systems | <input type="checkbox"/> |
| Blueprint Reading | <input type="checkbox"/> | Hydraulic Oil Systems | <input type="checkbox"/> |
| Applied Science | <input type="checkbox"/> | Radar Wave Guides | <input type="checkbox"/> |
| Practical Geometry | <input type="checkbox"/> | Gasoline Systems | <input type="checkbox"/> |
| Algebra | <input type="checkbox"/> | Bending and Targeting | <input type="checkbox"/> |
| Properties of Metals | <input type="checkbox"/> | Ship Construction | <input type="checkbox"/> |
| Properties of Materials | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Use and Care of Measuring Devices | <input type="checkbox"/> | | |
| Pneumatics | <input type="checkbox"/> | Joiner: | |
| Hydraulics | <input type="checkbox"/> | Introduction to Joiner Trade | <input type="checkbox"/> |
| Elements of Basic Metallurgy | <input type="checkbox"/> | Fastening and Unfastening | <input type="checkbox"/> |
| Applied Chemistry | <input type="checkbox"/> | Operation of Machinery | <input type="checkbox"/> |
| Elements of Leadership | <input type="checkbox"/> | Various Types of Staging | <input type="checkbox"/> |
| Foremanship and Supervision | <input type="checkbox"/> | Applying Insulation | <input type="checkbox"/> |
| Trade Drawing | <input type="checkbox"/> | Techniques of Operating Machinery | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Techniques of Installing Decking | <input type="checkbox"/> |
| | | Installing Covers | <input type="checkbox"/> |
| Boatbuilder, Wood: | | Elements of Drydock Work | <input type="checkbox"/> |
| Introduction to Boatbuilder Trade | <input type="checkbox"/> | Methods of Framing | <input type="checkbox"/> |
| Boat Nomenclature | <input type="checkbox"/> | Ship Construction | <input type="checkbox"/> |
| Fastening and Unfastening | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Operating Portable Power Tools | <input type="checkbox"/> | | |
| Staging | <input type="checkbox"/> | Loft Worker: | |
| Techniques of Machinery Operation | <input type="checkbox"/> | Laying Out and Lofting Hull Structures | <input type="checkbox"/> |
| Methods of Framing | <input type="checkbox"/> | Laying Out and Lofting Hull Fixtures | <input type="checkbox"/> |
| Drydock Work | <input type="checkbox"/> | Establishing Ships' Lines | <input type="checkbox"/> |
| Applying Insulation | <input type="checkbox"/> | Developing Templates | <input type="checkbox"/> |
| Fabricating Plastics | <input type="checkbox"/> | Fabricating Templates | <input type="checkbox"/> |
| Boat Construction | <input type="checkbox"/> | Developing Offsets | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Operating Machinery | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |
| Coppersmith: | | Patternmaker, Wood: | |
| Introduction to Coppersmithing | <input type="checkbox"/> | Foundry Processes | <input type="checkbox"/> |
| Ship and Shipyard Nomenclature | <input type="checkbox"/> | Molds | <input type="checkbox"/> |
| Materials | <input type="checkbox"/> | Patternmaking Handtools | <input type="checkbox"/> |
| Fuel Oil Systems | <input type="checkbox"/> | Woodworking Machines | <input type="checkbox"/> |
| Lube Oil Systems | <input type="checkbox"/> | Structural Methods | <input type="checkbox"/> |
| Location of Machinery | <input type="checkbox"/> | Pattern Construction Techniques | <input type="checkbox"/> |
| Fabrication | <input type="checkbox"/> | Pattern Equipment | <input type="checkbox"/> |
| Salt Water Systems | <input type="checkbox"/> | Making Simple Parted Pattern | <input type="checkbox"/> |
| Potable Water Systems | <input type="checkbox"/> | Cores and Core Boxes | <input type="checkbox"/> |
| Steam Systems | <input type="checkbox"/> | Cylindrical Patterns and Core Boxes | <input type="checkbox"/> |
| Retubing | <input type="checkbox"/> | | |

SUBJECTS AND COURSES—Continued

- | | | | |
|---|--------------------------|--|--------------------------|
| Flanged Fitting Patterns | <input type="checkbox"/> | Radial Line Development | <input type="checkbox"/> |
| Segmental Staved Patterns | <input type="checkbox"/> | Installing Structural Assemblies | <input type="checkbox"/> |
| Match Boards | <input type="checkbox"/> | Triangulation | <input type="checkbox"/> |
| Pattern and Casting Design | <input type="checkbox"/> | Establishing Working Lines | <input type="checkbox"/> |
| Patternmaker and the Foundry | <input type="checkbox"/> | Dies, Molds, and Fixtures | <input type="checkbox"/> |
| Advanced Pattern Layout | <input type="checkbox"/> | Using Table of Offsets | <input type="checkbox"/> |
| Metal Patterns | <input type="checkbox"/> | Templating from Ship | <input type="checkbox"/> |
| Valve Patterns | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Propeller and Impeller Patterns | <input type="checkbox"/> | | |
| Involute Pump Casing Patterns | <input type="checkbox"/> | Sheetmetal Worker: | |
| Double Suction Impeller Patterns | <input type="checkbox"/> | Machine Operation | <input type="checkbox"/> |
| Complex Cores and Core Boxes | <input type="checkbox"/> | Ventilation Fabrication | <input type="checkbox"/> |
| Plexiglass Models | <input type="checkbox"/> | Furniture Fabrication | <input type="checkbox"/> |
| Plaques and Insignias | <input type="checkbox"/> | Galley Equipment Fabrication | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Shipboard Outfitting and Fixture | |
| | | Installation | <input type="checkbox"/> |
| Pipe Coverer and Insulator: | | Sketching | <input type="checkbox"/> |
| Introduction to the Trade | <input type="checkbox"/> | Programming | <input type="checkbox"/> |
| Nomenclature of Ships | <input type="checkbox"/> | Materials of Sheetmetal Industry | <input type="checkbox"/> |
| Shop Practices | <input type="checkbox"/> | Theory of Surface Development | <input type="checkbox"/> |
| Low Temperature Pipe Coverings | <input type="checkbox"/> | Tool Practices | <input type="checkbox"/> |
| High Temperature Pipe Coverings | <input type="checkbox"/> | Bench Layout | <input type="checkbox"/> |
| Ventilation System Insulation | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| The Steam Cycle | <input type="checkbox"/> | | |
| Main and Auxiliary Machinery | <input type="checkbox"/> | Pipefitter Ship: | |
| Machinery Insulation | <input type="checkbox"/> | Introduction to Pipefitting | <input type="checkbox"/> |
| Refrigeration Piping Systems | <input type="checkbox"/> | Ship and Shipyard Nomenclature | <input type="checkbox"/> |
| Refrigeration Insulation | <input type="checkbox"/> | Materials | <input type="checkbox"/> |
| Main and Auxiliary Machinery Insulation | <input type="checkbox"/> | Fuel Oil Systems | <input type="checkbox"/> |
| Portable Insulation | <input type="checkbox"/> | Lube Oil Systems | <input type="checkbox"/> |
| Air Conditioning Piping Insulation | <input type="checkbox"/> | Location of Machinery | <input type="checkbox"/> |
| Refrigeration Piping Insulation | <input type="checkbox"/> | Salt Water Systems | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Sanitary Systems | <input type="checkbox"/> |
| | | Steam Systems | <input type="checkbox"/> |
| Shipfitter: | | Retubing | <input type="checkbox"/> |
| Introduction to Shipfitting | <input type="checkbox"/> | Chemical Cleaning | <input type="checkbox"/> |
| Ship Compartmentation | <input type="checkbox"/> | Distilling Plants | <input type="checkbox"/> |
| Quality Assurance | <input type="checkbox"/> | Compressed Air and Gas Systems | <input type="checkbox"/> |
| Machine Operations | <input type="checkbox"/> | Hydraulic Oil Systems | <input type="checkbox"/> |
| Layout Practices | <input type="checkbox"/> | Radar Wave Guides | <input type="checkbox"/> |
| Shop Assembly Practices | <input type="checkbox"/> | Aircraft Fuel Systems | <input type="checkbox"/> |
| Structural Ship Repair | <input type="checkbox"/> | Bending and Targeting | <input type="checkbox"/> |
| Ship Installation Practices | <input type="checkbox"/> | Pipes and Fittings | <input type="checkbox"/> |
| Types and Uses of Machines | <input type="checkbox"/> | Pipefitting Practices | <input type="checkbox"/> |
| Welding Theory | <input type="checkbox"/> | Plumbing and Pipefitting Tools | <input type="checkbox"/> |
| Welding Specifications | <input type="checkbox"/> | Insulation Piping | <input type="checkbox"/> |
| Pneumatic Tools Operations | <input type="checkbox"/> | High Pressure Pipe Fitting | <input type="checkbox"/> |
| Riveting Specifications | <input type="checkbox"/> | Sanitary Plumbing Systems | <input type="checkbox"/> |
| Computing Bond Allowances | <input type="checkbox"/> | Pipe Work | <input type="checkbox"/> |
| Parallel Line Development | <input type="checkbox"/> | Sizing Pipe for Plumbing | <input type="checkbox"/> |
| Assembly Procedures for Welding | <input type="checkbox"/> | Hot Water Supply | <input type="checkbox"/> |
| Methods of Installing Structural Parts | <input type="checkbox"/> | Heating Boilers | <input type="checkbox"/> |
| Hole Cutting Specifications | <input type="checkbox"/> | Steam Heating Systems | <input type="checkbox"/> |
| Air and Hydrostatic Testing | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

SUBJECTS AND COURSES—Continued

Machinist, Outside:		Computing Basic Mechanisms	<input type="checkbox"/>
Main Propulsion Machinery	<input type="checkbox"/>	Radar Fundamentals	<input type="checkbox"/>
Engineering Auxiliaries	<input type="checkbox"/>	Linear Rate Gun Fire Control Systems	<input type="checkbox"/>
Underwater Machinery	<input type="checkbox"/>	Radar Transmitters and Timing	<input type="checkbox"/>
Automatic Controls	<input type="checkbox"/>	Radar Indicators	<input type="checkbox"/>
Diesel Engines	<input type="checkbox"/>	Automatic Tracking Controls	<input type="checkbox"/>
Hydraulics	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Aircraft Launching Systems	<input type="checkbox"/>		
Aircraft Recovery Systems	<input type="checkbox"/>	Shipyards Electrician:	
Other (specify)	<input type="checkbox"/>	Lighting	<input type="checkbox"/>
		Interior Communications	<input type="checkbox"/>
Shipyards Painter:		Power	<input type="checkbox"/>
Introduction to Painting	<input type="checkbox"/>	Electronic Systems	<input type="checkbox"/>
Surface Preparation	<input type="checkbox"/>	Weapon Systems	<input type="checkbox"/>
Introduction to Spray Painting	<input type="checkbox"/>	Switchboards and Controllers	<input type="checkbox"/>
Techniques of Spray Painting	<input type="checkbox"/>	Motors and Generators	<input type="checkbox"/>
Brush Painting	<input type="checkbox"/>	Electrical Equipment Systems	<input type="checkbox"/>
Silk Screening	<input type="checkbox"/>	Electrical Test Equipment	<input type="checkbox"/>
Lettering	<input type="checkbox"/>	Degaussing Systems	<input type="checkbox"/>
Graining	<input type="checkbox"/>	Indicators	<input type="checkbox"/>
Paint Mixing	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Paint Matching	<input type="checkbox"/>		
Varnishing and Lacquering	<input type="checkbox"/>	Electronics Mechanic:	
Touch-up Painting	<input type="checkbox"/>	Equipment Restoration	<input type="checkbox"/>
Painting Boats	<input type="checkbox"/>	Sonar Restoration	<input type="checkbox"/>
Deck Covering	<input type="checkbox"/>	Communications	<input type="checkbox"/>
Equipment Painting	<input type="checkbox"/>	Radar Indicators	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	IFF Equipment	<input type="checkbox"/>
		Electronic Countermeasures	<input type="checkbox"/>
Machinist (Ships' Weapons):		Electronic Test Equipment	<input type="checkbox"/>
Hydraulic Systems	<input type="checkbox"/>	Sonar Systems	<input type="checkbox"/>
Main Battery Systems	<input type="checkbox"/>	Radar Systems	<input type="checkbox"/>
5" Gun Mounts	<input type="checkbox"/>	Electronics Mechanic (Radar Option)	<input type="checkbox"/>
3" Gun Mounts	<input type="checkbox"/>	Radar Power Supply	<input type="checkbox"/>
Missile Launchers	<input type="checkbox"/>	Indicators (RHI)	<input type="checkbox"/>
Gun Directors	<input type="checkbox"/>	Radar Transmitters	<input type="checkbox"/>
Principles of Naval Ordnance	<input type="checkbox"/>	Radar Antennas and Transmission	
Shop Practices	<input type="checkbox"/>	Line	<input type="checkbox"/>
Torpedo Tubes	<input type="checkbox"/>	Servo Mechanisms	<input type="checkbox"/>
Underwater Sound Systems	<input type="checkbox"/>	Electronics Mechanic (Sonar Option):	
Other (specify)	<input type="checkbox"/>	Transducers	<input type="checkbox"/>
		Fathometers	<input type="checkbox"/>
Fire Control Mechanic:		Scanning Switches	<input type="checkbox"/>
Introduction to Fire Control Mechanics	<input type="checkbox"/>	Preamplifiers and Receivers	<input type="checkbox"/>
Ships' Nomenclature	<input type="checkbox"/>	Sonar Indicators	<input type="checkbox"/>
Cabling	<input type="checkbox"/>	Sonar Trainers	<input type="checkbox"/>
Layout and Installation	<input type="checkbox"/>	Electronics Mechanic (Communications	
Fundamentals of Electricity	<input type="checkbox"/>	Option):	
Power Distribution	<input type="checkbox"/>	Communication Receivers	<input type="checkbox"/>
Test Equipment Applications	<input type="checkbox"/>	Receiver Converter Equipment	<input type="checkbox"/>
Fire Control Radar Units	<input type="checkbox"/>	Communications Transmitters	<input type="checkbox"/>
Troubleshooting Radar Units	<input type="checkbox"/>	Antenna Tuners, Couplers, Multicouplers	<input type="checkbox"/>
Synchro and Servo Fundamentals	<input type="checkbox"/>	Shipboard Communication System	<input type="checkbox"/>
Fire Control Surface Problems	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Fire Control Air Problems	<input type="checkbox"/>		

SUBJECTS AND COURSES—Continued

Boilermaker:

- | | | | |
|--|--------------------------|--------------------------------------|--------------------------|
| Safety and Shipyard Orientation | <input type="checkbox"/> | Refitting | <input type="checkbox"/> |
| Steam, Its History and Advancement | <input type="checkbox"/> | Bricklaying | <input type="checkbox"/> |
| The Steam Cycle | <input type="checkbox"/> | Basic Layout | <input type="checkbox"/> |
| Hand and Power Tools | <input type="checkbox"/> | Tube Installation | <input type="checkbox"/> |
| Boiler | <input type="checkbox"/> | Tube Removal | <input type="checkbox"/> |
| Types | <input type="checkbox"/> | Tube Layout | <input type="checkbox"/> |
| Arrangement | <input type="checkbox"/> | Tube Bending | <input type="checkbox"/> |
| Utilization | <input type="checkbox"/> | Machine Operations | <input type="checkbox"/> |
| Pressures | <input type="checkbox"/> | Machine Operation Calculations | <input type="checkbox"/> |
| Inspection | <input type="checkbox"/> | Tanks | <input type="checkbox"/> |
| Wear | <input type="checkbox"/> | Head forming | <input type="checkbox"/> |
| Defects | <input type="checkbox"/> | Calculating Volume | <input type="checkbox"/> |
| Repa | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

Machines and Equipment:

- | | | | |
|----------------------------------|--------------------------|---------------------------------------|--------------------------|
| Metalworking: | | Bandsaws | <input type="checkbox"/> |
| Bending machines: | | Jigsaws | <input type="checkbox"/> |
| Bending rolls | <input type="checkbox"/> | Sabre saws | <input type="checkbox"/> |
| Flanging rolls | <input type="checkbox"/> | Variety saws | <input type="checkbox"/> |
| Crimping rolls | <input type="checkbox"/> | Gangsaws | <input type="checkbox"/> |
| Brakes | <input type="checkbox"/> | Jointers | <input type="checkbox"/> |
| Pipe bending machines | <input type="checkbox"/> | Patternmaking | <input type="checkbox"/> |
| Tube bending machines | <input type="checkbox"/> | Laminating presses | <input type="checkbox"/> |
| Presses: | | Boring machines | <input type="checkbox"/> |
| Punch presses | <input type="checkbox"/> | Drill presses | <input type="checkbox"/> |
| Dishing machines | <input type="checkbox"/> | Steam chambers | <input type="checkbox"/> |
| Hydraulic presses | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Bulldozers | <input type="checkbox"/> | | |
| Drill presses | <input type="checkbox"/> | Lofting machines: | |
| Bending machines | <input type="checkbox"/> | 1/10 Optical detailing machines | <input type="checkbox"/> |
| Pedestal grinders | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Shearing machines | <input type="checkbox"/> | | |
| Cutoff saws | <input type="checkbox"/> | Electrical: | |
| Abrasive saws | <input type="checkbox"/> | Coil winders | <input type="checkbox"/> |
| Welding machines: | | Battery chargers | <input type="checkbox"/> |
| Spotwelders | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Resistance welders | <input type="checkbox"/> | | |
| Automatic welding machines | <input type="checkbox"/> | Tools: | |
| Flame cutting machines | <input type="checkbox"/> | Handtools: | |
| Pantograph flame cutters | <input type="checkbox"/> | Adzes | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Augers | <input type="checkbox"/> |
| | | Axes | <input type="checkbox"/> |
| Woodworking: | | Bars: | |
| Wood lathes | <input type="checkbox"/> | Crowbars | <input type="checkbox"/> |
| Bending machines | <input type="checkbox"/> | Prybars | <input type="checkbox"/> |
| Planers | <input type="checkbox"/> | Chisels: | |
| Shapes | <input type="checkbox"/> | Metal chisels | <input type="checkbox"/> |
| Mortisers | <input type="checkbox"/> | Wood chisels | <input type="checkbox"/> |
| Saws: | | Drills: | |
| Circular saws | <input type="checkbox"/> | Brace and bits | <input type="checkbox"/> |
| | | High speed twist drills | <input type="checkbox"/> |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- Files:
 - Metal files
 - Wood files
 - Screwdrivers
 - Phillips screwdrivers
 - Wrenches:
 - Allen wrenches
 - Box wrenches
 - Crescent wrenches
 - Monkey wrenches
 - Open end wrenches
 - Socket wrenches
 - Stilson wrenches
 - Cutters:
 - Glass cutters
 - Scissors
 - Sidecutters
 - Wire cutters
 - Wire strippers
 - Pipe cutters
 - Pipe threaders
 - Taps
 - Reamers
 - Pullers:
 - Bearing pullers
 - Gear pullers
 - Hammers:
 - Ballpeen hammers
 - Claw hammers
 - Saws:
 - Hacksaws
 - Keyhole saws
 - Ripsaws
 - Crescent saws
 - Mauls:
 - Copper mauls
 - Rubber mauls
 - Knives:
 - Drawknives
 - Linoleum knives
 - Pliers:
 - Vise grip
 - Channel lock
 - Heaters:
 - Blowtorches
 - Hawk torches
 - Rivet heaters
 - Stud drivers
 - Easy outs
 - Woodcarving tools
 - Scribers
 - Pipe benders
 - Tube benders
 - Marlin spikes
 - Tongs
 - Belting tools
 - Flaring tools
 - Rivet bucking tools
 - Nail punches
 - Paint brushes
 - Paint rollers
 - Gravers
 - Wood planes
 - Sledges
 - Mallets
 - Scrapers
 - Other (specify)
- Power handtools:
- Buffers
 - Calking hammers
 - Chipping hammers
 - Grinders
 - Drills
 - Riveting guns
 - Soldering guns
 - Impact wrenches
 - Stapling guns
 - Hand held circular saws
 - Blind rivet drivers
 - Other (specify)
- Work Aids:
- Mechanical measuring devices:
- Calipers
 - Compasses
 - Dividers
 - Protractors
 - Squares
 - Quadrants
- Gages:
- Center gage
 - Dial indicator
 - Feeler gage
 - Balance gage
 - Height gage
 - Radius gage
 - Screw pitch gage
 - Thickness gage
 - Thread gage
 - Wire gage
- Micrometers:
- Depth micrometer
 - Flange micrometer
 - Inside micrometer
 - Outside micrometer
 - Swiss hole micrometer
 - Torque meter

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- | | | | |
|-------------------------------------|--------------------------|-------------------------------------|--------------------------|
| Angle plates | <input type="checkbox"/> | Optical centering instruments | <input type="checkbox"/> |
| Rules: | | Optical protractor | <input type="checkbox"/> |
| Depth rule | <input type="checkbox"/> | Transit | <input type="checkbox"/> |
| Machinist rules | <input type="checkbox"/> | Bore sighting instruments | <input type="checkbox"/> |
| Steel tape rules | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | | |
| Electrical measuring equipment: | | Miscellaneous Work Aids: | |
| Circuit continuity equipment | <input type="checkbox"/> | Patterns | <input type="checkbox"/> |
| Impedance measuring equipment | <input type="checkbox"/> | Templates | <input type="checkbox"/> |
| Ammeters | <input type="checkbox"/> | Formulas | <input type="checkbox"/> |
| Bridge gages: | | Work orders | <input type="checkbox"/> |
| Kelvin bridge gages | <input type="checkbox"/> | Models | <input type="checkbox"/> |
| Megohm bridge gages | <input type="checkbox"/> | Records | <input type="checkbox"/> |
| Vacuum bridge gages | <input type="checkbox"/> | Graphs | <input type="checkbox"/> |
| Wheatstone bridge gages | <input type="checkbox"/> | Charts | <input type="checkbox"/> |
| Ohmmeter | <input type="checkbox"/> | Tables | <input type="checkbox"/> |
| Power factor meter | <input type="checkbox"/> | Offset tables | <input type="checkbox"/> |
| Phase angle meter | <input type="checkbox"/> | Specifications | <input type="checkbox"/> |
| Voltohm millimeter | <input type="checkbox"/> | Test sheets | <input type="checkbox"/> |
| Microwave test equipment | <input type="checkbox"/> | Holding devices | <input type="checkbox"/> |
| Radiometer | <input type="checkbox"/> | Jigs | <input type="checkbox"/> |
| Oscillograph | <input type="checkbox"/> | Boat plugs | <input type="checkbox"/> |
| Oscilloscope | <input type="checkbox"/> | Specification manuals | <input type="checkbox"/> |
| Light meter | <input type="checkbox"/> | Stock lists | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Sketches | <input type="checkbox"/> |
| Optical measuring instruments: | | Blueprints | <input type="checkbox"/> |
| Microscope | <input type="checkbox"/> | Abrasive stones | <input type="checkbox"/> |
| Optical comparator | <input type="checkbox"/> | Hoists | <input type="checkbox"/> |
| Polariscope | <input type="checkbox"/> | Chain Hoists | <input type="checkbox"/> |
| Shadowgraph | <input type="checkbox"/> | Block and Tackle | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |

SHIP AND BOAT STRUCTURES, MACHINERY, EQUIPMENT, SYSTEMS, AND SHIPYARD FACILITIES

Record an "X" to indicate structures, machinery, or equipment worked on.

- | | | | |
|-----------------------------------|--------------------------|--------------------------|--------------------------|
| Vessels: | | Gasoline engines | <input type="checkbox"/> |
| Boats: | | Boilers: | |
| Pleasure boats | <input type="checkbox"/> | Fuel oil | <input type="checkbox"/> |
| Fishing boats | <input type="checkbox"/> | Nuclear power | <input type="checkbox"/> |
| Speedboats | <input type="checkbox"/> | Reduction gear | <input type="checkbox"/> |
| Ships: | | Engineering auxiliaries: | |
| Passenger | <input type="checkbox"/> | Pumps | <input type="checkbox"/> |
| Passenger-Cargo | <input type="checkbox"/> | Evaporators | <input type="checkbox"/> |
| Cargo | <input type="checkbox"/> | Air compressors | <input type="checkbox"/> |
| Tankers | <input type="checkbox"/> | Condensers | <input type="checkbox"/> |
| Naval | <input type="checkbox"/> | Ice machinery | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Deck machinery | <input type="checkbox"/> |
| Ships machinery and equipment: | | Steering engines | <input type="checkbox"/> |
| Propulsion machinery: | | Air ejectors | <input type="checkbox"/> |
| Steam turbines | <input type="checkbox"/> | Electrical equipment: | |
| Steam reciprocating engines | <input type="checkbox"/> | Turbo generators | <input type="checkbox"/> |
| Diesel engines | <input type="checkbox"/> | Diesel generators | <input type="checkbox"/> |
| | | Gas generators | <input type="checkbox"/> |

**SHIP AND BOAT STRUCTURES, MACHINERY, EQUIPMENT, SYSTEMS,
AND SHIPYARD FACILITIES—Continued**

Switchboards	<input type="checkbox"/>	Lubricating oil	<input type="checkbox"/>
Lighting systems	<input type="checkbox"/>	Fire main	<input type="checkbox"/>
Intercommunications systems	<input type="checkbox"/>	Potable water	<input type="checkbox"/>
Motors	<input type="checkbox"/>	Salt water	<input type="checkbox"/>
Gyrocompasses	<input type="checkbox"/>	Gasoline	<input type="checkbox"/>
Electronic equipment:		Steam	<input type="checkbox"/>
Radar	<input type="checkbox"/>	Sanitary	<input type="checkbox"/>
Sonar	<input type="checkbox"/>	Electrical wiring systems	<input type="checkbox"/>
Fire Control	<input type="checkbox"/>	Weapons control systems	<input type="checkbox"/>
Weapons control	<input type="checkbox"/>	Damage control systems	<input type="checkbox"/>
Communications	<input type="checkbox"/>	Heating systems	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Instrumentation and controls systems	<input type="checkbox"/>
		Other (specify)	<input type="checkbox"/>
Ships structures:		Shipyards facilities:	
Hull	<input type="checkbox"/>	Drydocks:	
Decks	<input type="checkbox"/>	Graving docks	<input type="checkbox"/>
Superstructures	<input type="checkbox"/>	Floating drydocks	<input type="checkbox"/>
Living spaces	<input type="checkbox"/>	Marine railways	<input type="checkbox"/>
Compartments	<input type="checkbox"/>	Drydock equipment:	
Cabins	<input type="checkbox"/>	Blocks:	
Tanks	<input type="checkbox"/>	Keel blocks	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Bilge blocks	<input type="checkbox"/>
		Cassions	<input type="checkbox"/>
Ships systems:		Staging	<input type="checkbox"/>
Navigational systems	<input type="checkbox"/>	Cranes	<input type="checkbox"/>
Ventilating systems	<input type="checkbox"/>	Craft shops	<input type="checkbox"/>
Air conditioning and refrigeration systems	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Piping systems:			
Fuel	<input type="checkbox"/>		

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

Agriculture	<input type="checkbox"/>	Financial	<input type="checkbox"/>
Commercial:		Government Service	<input type="checkbox"/>
Business Service	<input type="checkbox"/>	Industrial	<input type="checkbox"/>
Food and Beverage	<input type="checkbox"/>	Insurance	<input type="checkbox"/>
Lodging Service	<input type="checkbox"/>	Legal	<input type="checkbox"/>
Personal Service	<input type="checkbox"/>	Library	<input type="checkbox"/>
Printing and Publishing	<input type="checkbox"/>	Medical Service	<input type="checkbox"/>
Repair Service	<input type="checkbox"/>	Military	<input type="checkbox"/>
Sales	<input type="checkbox"/>	Nonprofit	<input type="checkbox"/>
Communications	<input type="checkbox"/>	Office Service	<input type="checkbox"/>
Conservation	<input type="checkbox"/>	Recreation	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Social Service	<input type="checkbox"/>
Correctional	<input type="checkbox"/>	Subsurface and Space	<input type="checkbox"/>
Educational	<input type="checkbox"/>	Transportation	<input type="checkbox"/>
Entertainment	<input type="checkbox"/>	Utilities	<input type="checkbox"/>
Exhibition Center	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

TEXTILE MILL WORK

Inventory

WHAT THE WORKER DOES

Below are listed activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates mill activities concerned with:

- Production of yarn from specific type of fiber
- Production of thread from specific type of fiber
- Weaving broad woven fabrics from processed fibers
- Weaving or braiding narrow fabrics from processed fibers
- Finishing, by textile mill processes, fabrics and cloth:
 - On commission basis
 - Purchased materials
 - Other (specify)

Supervises, and coordinates activities of, workers engaged in:

- Sorting and grading raw materials used in products
- Preparing warp and filling yarn
- Winding and twisting yarn
- Spinning yarn
- Spinning thread
- Weaving cloth
- Washing and soaping cloth
- Mixing dyes or paints for dyeing yarns or printing fabrics
- Dyeing yarn or printing woven fabrics
- Aging printed fabrics
- Finishing fabrics
- Grading fabrics according to defects
- Other (specify)

Studies or analyzes:

- Production schedule
- Material specifications
- Processing specifications
- Fabric specifications
- Other (specify)

Determines from data:

- Fiber preparation requirements
- Direction and amount of twist required to produce specified type fibers
- Yarn size, type, texture, and quantity for specified fabric
- Machine setup for specific mill processes
- Pattern chains required
- Yarn or fabric dyeing activities
- Fabric finishing activities
- Processing sequences and requirements
- Manpower requirements
- Other (specify)

WHAT THE WORKER DOES—Continued

- Prepares:**
- Order sheets
 - Warp pattern sheets
 - Formula sheets
 - Loom setup instructions indicating:
 - Harness size
 - Number of harnesses required
 - Type of heddles
 - Warp ends per inch
 - Sequences of drawing through harness and reeds
 - Changes in loom:
 - Shedding
 - Picking
 - Warp letoff
 - Cloth take-up speeds
 - Processing schedules
 - Production reports
 - Work and worker schedules
 - Other (specify)
- Computes:**
- Gear size required to effect required twist on yarn
 - Draft required to reduce roving to specified yarn size
 - Drafting gear size to stretch roving and reduce roving to size
 - Other (specify)
- Assigns workers to specific duties**
- Interprets production orders, product specifications, and technical data for workers**
- Gives workers directions for performing assigned duties**
- Advises workers on methods and procedures for solving work problems**
- Reviews laboratory and test results on materials and products**
- Orders changes in machine operations or processing methods to meet product specifications, as required**
- Coordinates departmental activities with those of other departments**
- Requisitions materials and applies required for production activities**
- Trains workers in assigned duties and equipment or machine operations**
- Notifies maintenance personnel of needed machine or equipment repairs**
- Enforces worker compliance with work procedures, regulations, and safety rules**
- Observes workers performing duties to insure their compliance with work directions**
- Keeps processing and production records**
- Other (specify)**
- Sets up machine or range sections for other workers**
- Sets up and operates machines or equipment**
- Operates machines**
- Controls operation of equipment**
- Tends:**
- Machines or equipment
 - One section of range
- Feeds materials or inprocess products into machines or equipment**
- Offbears materials or products from machines or equipment**
- Other (specify)**
- Sets up and adjusts textile machines or equipment for specific mill process(es):**
- Reads production orders or set up directions to obtain set up data**
 - Determines from data setup procedures or adjustments required**
- Disassembles and removes parts or equipment requiring change, such as:**
- Rollers
 - Pulley
 - Pattern chain
 - Pattern control card
 - Gears
 - Beam
 - Harness assembly
 - Rolls
 - Guides
- Selects specified replacement parts**
- Installs, alines, and secures parts or equipment on/in machine**
- Turns setscrews or controls to:**
- Set specified clearances between parts
 - Obtain specified tension on materials
 - Obtain specified pressure on materials
 - Synchronize speed of machine or equipment units
 - Regulate speed of rolls or rollers
 - Regulate machine or equipment unit:
 - Pressures
 - Temperatures
 - Vacuum
- Pulls material through:**
- Drop wires
 - Heddles
 - Reed dents
- Threads materials through:**
- Guides
 - Rolls

WHAT THE WORKER DOES—Continued

- | | | | |
|---|--------------------------|--|--------------------------|
| Rollers | <input type="checkbox"/> | Measures materials or textile products for conformance with specified: | |
| Tension devices | <input type="checkbox"/> | Width | <input type="checkbox"/> |
| Stop motion devices | <input type="checkbox"/> | Length | <input type="checkbox"/> |
| Machine or equipment units | <input type="checkbox"/> | Thickness | <input type="checkbox"/> |
| Fastens ends of materials or products onto: | | Other (specify) | <input type="checkbox"/> |
| Loom beam | <input type="checkbox"/> | Tests: | |
| Bobbin | <input type="checkbox"/> | Chemical solutions for specified concentration or strength | <input type="checkbox"/> |
| Spool | <input type="checkbox"/> | Materials or products for: | |
| Rewinding device | <input type="checkbox"/> | Type of composition | <input type="checkbox"/> |
| Operates machine or equipment to test setup for conformance with operational specifications | <input type="checkbox"/> | Tensile strength | <input type="checkbox"/> |
| Adjusts setscrews, settings, and controls to obtain specified operation | <input type="checkbox"/> | Shrinkage characteristics | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Absorbency capabilities | <input type="checkbox"/> |
| Turns valves to: | | Fastness of dye | <input type="checkbox"/> |
| Fill tanks or vats with specified amounts of liquid | <input type="checkbox"/> | Crease resiliency | <input type="checkbox"/> |
| Admit steam into equipment | <input type="checkbox"/> | Resistance to fading | <input type="checkbox"/> |
| Heat rollers or solutions | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Empty tanks or vats of solutions or dyes | <input type="checkbox"/> | Counts number of picks per inch | <input type="checkbox"/> |
| Pump materials to processing stations | <input type="checkbox"/> | Records test or inspection results | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Marks defective materials or products | <input type="checkbox"/> |
| Inspects or examines: | | Adds chemicals to solution to obtain specified strength | <input type="checkbox"/> |
| Inprocess materials for: | | Cuts out defective materials | <input type="checkbox"/> |
| Slubs | <input type="checkbox"/> | Ties broken ends of fibers or yarn together | <input type="checkbox"/> |
| Holes | <input type="checkbox"/> | Rethreads ends of materials through machines and accessories | <input type="checkbox"/> |
| Grease spots | <input type="checkbox"/> | Sews trailing and leading edges of cloth together for feeding into range | <input type="checkbox"/> |
| Breaks | <input type="checkbox"/> | Cuts material after specified amount has been wound on spooler bobbin | <input type="checkbox"/> |
| Tangles | <input type="checkbox"/> | Doffs filled bobbins, spools, cones, or reels | <input type="checkbox"/> |
| Textile fibers or fabrics for: | | Replaces: | |
| Color runs | <input type="checkbox"/> | Filled bobbins, spools, cones, or reels with empty ones | <input type="checkbox"/> |
| Uneven color shades | <input type="checkbox"/> | Exhausted bobbins, spools, cones, or reels with filled ones | <input type="checkbox"/> |
| Defects in winding | <input type="checkbox"/> | Beams holding yarn with hoist | <input type="checkbox"/> |
| Smudges | <input type="checkbox"/> | Pushes racks of materials into equipment for processing | <input type="checkbox"/> |
| Out of register printing | <input type="checkbox"/> | Patrols section of range to observe operations | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Notifies supervisory personnel of malfunctioning equipment or defective products | <input type="checkbox"/> |
| Weighs: | | Trucks materials to processing stations | <input type="checkbox"/> |
| Materials specified on formula for solutions | <input type="checkbox"/> | Reworks defective products by: | |
| Fabric samples | <input type="checkbox"/> | Winding | <input type="checkbox"/> |
| Fiber samples | <input type="checkbox"/> | Weaving | <input type="checkbox"/> |
| Uncoated and coated products | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Repairs: | |
| Mixes: | | Rebuilds: | |
| Chemical processing solutions | <input type="checkbox"/> | | |
| Dyes | <input type="checkbox"/> | | |
| Paints for silk screen or fabric printing operations | <input type="checkbox"/> | | |
| Coating materials for products | <input type="checkbox"/> | | |
| Other (specify) | <input type="checkbox"/> | | |

WHAT THE WORKER DOES—Continued

Replaces:

- Textile mill manufacturing or processing machines or equipment
- Inspects and observes operation of equipment or machine malfunctioning
- Disassembles or removes malfunctioning unit or equipment part
- Examines disassembled parts for:
 - Cracks
 - Excessive wear
 - Alignment of components
 - Cause of malfunction
- Measures parts or spacing of parts for conformance with specifications
- Cleans and polishes metal parts
- Smooths rough edges
- Replaces or repairs parts

- Installs, aligns, levels, and secures parts in place
- Adjusts clearances between parts
- Test operates machine or equipment for conformance with operational specifications
- Components of machines, as:
 - Half lap needle bars
 - Loopy reeds
 - Shuttles
 - Spindles
 - Harness frames and straps
 - Shuttle boxes and binders
 - Reeds
 - Clothing or lining on machine parts
 - Pattern chains on looms
 - Other (specify)

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | |
|--|---|
| Management <input type="checkbox"/> | Workers <input type="checkbox"/> |
| Supervisors <input type="checkbox"/> | Helpers <input type="checkbox"/> |
| Other Supervisors <input type="checkbox"/> | Laboratory Personnel <input type="checkbox"/> |
| Machine Operators <input type="checkbox"/> | Inspection Personnel <input type="checkbox"/> |
| Range Operators <input type="checkbox"/> | Testing Personnel <input type="checkbox"/> |
| Range Tenders <input type="checkbox"/> | Other (specify) <input type="checkbox"/> |

EDUCATION AND TRAINING

Record an "X" to indicate education and training requirements.

- | | |
|---|--|
| Elementary <input type="checkbox"/> | Vocational School <input type="checkbox"/> |
| High School <input type="checkbox"/> | Apprenticeship <input type="checkbox"/> |
| Junior College <input type="checkbox"/> | On-the-job Training <input type="checkbox"/> |
| Technical School <input type="checkbox"/> | Other (specify) <input type="checkbox"/> |

MILL MATERIALS AND PROCESSES

Record an "X" to indicate materials and processes used.

Types of raw materials:

Type of fibers:

- Monofilament
- Yarn
- Staple
- Tow
- Other (specify)

- Flax fiber
- Hemp fiber
- Jute fiber
- Mohair
- Silk fiber
- Vicuna hair
- Wool (sheep)
- Other (specify)

Types of organic fibers:

- Alpaca hair
- Angora hair (rabbit or goat)
- Cotton fiber

Types of cellulose man-made fibers:

- Acetate
- Cuprammonium

MILL MATERIALS AND PROCESSES Continued

- Nitrocellulose
- Rayon
- Viscose
- Other (specify)

Types of synthetic organic fibers:

- Acrylic
- Acrylonitrile
- Acridex
- Casein
- Elastometric
- Fluocarbon
- Linear esters
- Modacrylic
- Nylon
- Olefin
- Polyester
- Polyvinyl ester
- Polyvinylidene chloride
- Protein
- Saran
- Vinal
- Vinylidene chloride
- Zein
- Other (specify)

Types of mill processes:

- Aging
- Balling
- Beaming
- Bleaching
- Blending
- Boiling
- Brushing
- Calendering
- Carbonizing
- Carding
- Coating
- Combing
- Cooling
- Crimping
- Crushing
- Cutting
- Desizing
- Doubling
- Drawing
- Drying
- Dyeing
- Embossing

- Extracting
- Finishing
- Flocking
- Folding
- Garnetting
- Impregnating
- Mangling
- Marking
- Mercerizing
- Napping
- Painting
- Picking
- Pleating
- Polishing
- Pressing
- Quilling
- Reeling
- Rolling
- Roving
- Sanforizing
- Shrinking
- Silk rearing
- Singeing
- Sizing
- Skeining
- Slivering
- Slubbing
- Spooling
- Spinning
- Splicing
- Splitting
- Sponging
- Spraying
- Spreading
- Starching
- Steaming
- Stretching
- Tentering
- Texturing
- Throwing
- Twisting
- Warping
- Washing
- Waterproofing
- Waxing
- Weaving
- Winding
- Other (specify)

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate type of and machines and equipment, tools and work aids.

Types of machines/equipment:

- Automatic
- Continuous processing
- Manually operated
- Multi-purpose
- Pattern controlled
- Semi-automatic
- Other (specify)

Machines/equipment:

- Aniline-dye aging equipment
- Autoclave
- Balling machine
- Batting machine
- Beaming machine:
 - Beam dryer
 - Beam warper
- Bleaching equipment
- Blending machine
- Blowing machine
- Bobbin machines:
 - Bobbin winding machine
 - Bobbin cleaning machine
- Boiling-off equipment
- Braid making machine
- Breaker machine
- Brushing machine:
 - Corduroy brushing machine
 - Steam brushing machine
- Calender
- Carbonizer equipment:
 - Felt carbonizer
 - Wool carbonizer
- Carding machine
- Chinchilla machine
- Clarifier
- Cloth processing machines and equipment:
 - Cloth bleaching range
 - Cloth finishing range
 - Cloth measuring range
 - Cloth mercerizing range
 - Cloth oiling machine
 - Cloth reeling machine
 - Cloth sanding machine
 - Cloth shrinking equipment
 - Cloth skeining and reeling machine
 - Cloth spreading machine
 - Cloth washing machine
- Coating machine:
 - Fabric coating machine
 - Twine coating machine
- Coating and embossing machine

- Combining machine
- Cooling equipment
- Cordage and twine machines:
 - Cord doubling and twisting machine
 - Cord impregnating equipment
 - Paper tape making machine
 - Paper twisting machine
 - Rope strand-forming machine
 - Rope twisting machine
- Covering machine
- Creels
- Crimping machine
- Cutting machine:
 - Corduroy cutting machine
 - Die cutting machine
 - Felt cutting machine
- Decating equipment
- Dampening-spray machine
- Dyeing equipment
- Electrifier equipment
- Embroidery machine
- Extractor
- Felting machine
- Flocking machine
- Frames:
 - Pulling in frame
 - Doubling and twisting frame
- Fulling machine
- Garnetting machine
- Hair picking machine
- Heddles
- Hooking machine
- Humidifying equipment
- Hydraulic press
- Jacquard pattern card cutter
- Kier boiling equipment
- Knot tying machine
- Knife grinding machine
- Lace making machine
- Leasing machine
- London shrinking equipment
- Looms:
 - Jacquard loom
 - Needle loom
 - Loom winding machine
 - Ring loom
- Mangle
- Marking machine
- Mixing machine:
 - Chemical solution mixer
 - Dye mixing machine
 - Size mixer
- Napping machine

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- Net making machine
- Nicking machine
- Opening machine
 - Bale opening machine
- Open soaping machine
- Package dyeing equipment
- Padding making machine
- Pick pulling machine
- Plissé machine
- Printing machines:
 - Drum printing machine
 - Novelty printing machine
 - Silk screen printing machine
- Quilling machine
- Rag picker machine
- Reeds
- Reeling machines:
 - Rope coiling machine
 - Twine reeling machine
 - Reeling and tubing machine
- Ribbon making machine
- Ribbon lapping machine
- Roll down machine
- Rope processing machines:
 - Rope silica washing machine
 - Rope soaping machine
 - Rope taring machine
- Roving machine
 - Roving frame
- Sanforizing machine
- Schreiner embossing machine
- Scouring machine
- Sewing machine
- Shear grinding machine
- Shearing machine
- Shuttles
- Shuttle boxes
- Silk creping machine
- Silk spreading machine
- Singeing equipment
- Sizing equipment
- Skein processing machines:
 - Skein winding machine
 - Skein yard-dyeing equipment
- Slasher machine
- Slitting and twisting machine
- Sliver lapping machine
- Slubbing machine
- Spinning machine
- Spooling machine
- Spray machine
- Staple processing machine
- Steaming equipment
- Stenciling machine

- Striker machines:
 - Strike-off machine
 - Strike-out machine
- Super-loft twisting machine
- Tailing machine
- Taslan machine
- Tentering machine
 - Tenter frame
- Thread making machine
- Tin-Whiz machine
- Top-dyeing equipment
- Tufting machine
- Twisting machine
 - Uptwister machine
- Unifil machine
- Vacuum filter machine
- Warping machines:
 - Warp coiling machine
 - Warp dyeing equipment
 - Warp tying machine
- Washing machine
- Waste cleaning machine
- Waterproofing equipment
- Waxing machine
- Winding machine
- Wool picking machine
- Wool washing machine
- Worsted winding machine
- Wringing machine
- Yarn processing machine:
 - Yarn bleaching machine
 - Yarn conditioning-spray machine
 - Yarn mercerizing machine
 - Yarn polishing machine
 - Yarn texturizing machine
 - Yarn washing and bleaching machine
 - Yarn winding machine
- Other (specify)

Tools:

- Handtools:
 - Knives
 - Screwdrivers
 - Wrenches
 - Wirebrushes
 - Needles
 - Scissors
 - Rakes
 - Hammers
 - Punches
 - Files
 - Steel picks
 - Reed hooks
 - Other (specify)

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS - Continued

- | | | | |
|-------------------------------|--------------------------|--------------------------------|--------------------------|
| Power tools: | | Tensionometer | <input type="checkbox"/> |
| Electric drills | <input type="checkbox"/> | Densitometer | <input type="checkbox"/> |
| Grinding wheels | <input type="checkbox"/> | Tapes | <input type="checkbox"/> |
| Soldering irons | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Power rivet guns | <input type="checkbox"/> | | |
| Other (specify) | <input type="checkbox"/> | Production orders | <input type="checkbox"/> |
| | | Product specifications | <input type="checkbox"/> |
| Workaids: | | Material specifications | <input type="checkbox"/> |
| Measuring instruments: | | Standard samples | <input type="checkbox"/> |
| Micrometers | <input type="checkbox"/> | Pattern charts | <input type="checkbox"/> |
| Feeler gages | <input type="checkbox"/> | Formulas | <input type="checkbox"/> |
| Rulers | <input type="checkbox"/> | Holding devices and jigs | <input type="checkbox"/> |
| Viscosimeter | <input type="checkbox"/> | Production reports | <input type="checkbox"/> |
| Hydrometer | <input type="checkbox"/> | Requisition forms | <input type="checkbox"/> |
| Grain scales | <input type="checkbox"/> | Standard forms | <input type="checkbox"/> |
| Flat gages | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Pin gages | <input type="checkbox"/> | | |

PRODUCTS

Record an "X" to indicate products worked on or produced.

- | | | | |
|------------------------------------|--------------------------|-------------------------------------|--------------------------|
| Cotton broad woven fabrics: | | Cottonades | <input type="checkbox"/> |
| Airplane cloth | <input type="checkbox"/> | Coutil | <input type="checkbox"/> |
| Alpacas | <input type="checkbox"/> | Coverts | <input type="checkbox"/> |
| Automotive fabrics | <input type="checkbox"/> | Crash toweling | <input type="checkbox"/> |
| Awning stripes | <input type="checkbox"/> | Crepe | <input type="checkbox"/> |
| Bags and bagging | <input type="checkbox"/> | Cretonne | <input type="checkbox"/> |
| Bandage cloth | <input type="checkbox"/> | Crinoline | <input type="checkbox"/> |
| Bark cloth | <input type="checkbox"/> | Damasks | <input type="checkbox"/> |
| Basket weave fabrics | <input type="checkbox"/> | Denims | <input type="checkbox"/> |
| Bathmats | <input type="checkbox"/> | Diaper fabrics | <input type="checkbox"/> |
| Batiste | <input type="checkbox"/> | Dimities | <input type="checkbox"/> |
| Bedspreads | <input type="checkbox"/> | Dishcloths | <input type="checkbox"/> |
| Bird's-eye diaper cloth | <input type="checkbox"/> | Draperies and drapery fabrics | <input type="checkbox"/> |
| Bombazine | <input type="checkbox"/> | Dress fabrics | <input type="checkbox"/> |
| Book cloth | <input type="checkbox"/> | Drills | <input type="checkbox"/> |
| Broadcloth | <input type="checkbox"/> | Duck | <input type="checkbox"/> |
| Brocade | <input type="checkbox"/> | Duvetyn | <input type="checkbox"/> |
| Buckram | <input type="checkbox"/> | Elastic fabrics | <input type="checkbox"/> |
| Bunting cloth | <input type="checkbox"/> | Express stripes | <input type="checkbox"/> |
| Cambric | <input type="checkbox"/> | Filter cloth | <input type="checkbox"/> |
| Camouflage nets | <input type="checkbox"/> | Flannette | <input type="checkbox"/> |
| Canton flannels | <input type="checkbox"/> | Flannels | <input type="checkbox"/> |
| Canvas | <input type="checkbox"/> | Frieze | <input type="checkbox"/> |
| Casement cloth | <input type="checkbox"/> | Friezette | <input type="checkbox"/> |
| Chafar fabrics | <input type="checkbox"/> | Furniture denim | <input type="checkbox"/> |
| Cheese bandages | <input type="checkbox"/> | Gabardine | <input type="checkbox"/> |
| Cheesecloth | <input type="checkbox"/> | Galatea | <input type="checkbox"/> |
| Chenilles | <input type="checkbox"/> | Gauze | <input type="checkbox"/> |
| Chevoits | <input type="checkbox"/> | Ginghams | <input type="checkbox"/> |
| Chintz | <input type="checkbox"/> | Glass toweling | <input type="checkbox"/> |
| Corduroy fabric | <input type="checkbox"/> | Glove fabric | <input type="checkbox"/> |
| Corset fabric | <input type="checkbox"/> | Grosgrain | <input type="checkbox"/> |

PRODUCTS Continued

- Handkerchief fabrics
- Hickory stripes
- Huck toweling
- Interlining material
- Jacquard woven fabrics
- Jean fabrics
- Laundry fabrics
- Laundry nets
- Lawn
- Leno cloth
- Long cloth
- Luggage fabric
- Madras
- Marquisettes
- Matelasse
- Messalin
- Mitts
- Moles
- Momp
- Moquette
- Muslin
- Nainsook
- Net and Nettings
- Opalin
- Orsedy
- Osaburgs
- Outing flannel
- Oxfords
- Pajama checks
- Percal
- Percaline
- Pile fabrics
- Pillow tubing
- Pillowcases
- Pin checks
- Pin stripes
- Piques
- Plaids
- Plisse crepe
- Plushes
- Packeting twill
- Pragee
- Poplin
- Press cloth
- Print cloths
- Ratine
- Rep
- Romaines
- Sail cloth
- Sateens
- Scrim
- Scrub cloths
- Seat cover cloth
- Seersuckers
- Sheets and sheeting

- Shirting fabrics
- Shoe fabrics
- Silosa
- Slip cover fabrics
- Stretch fabrics
- Suiting fabrics
- Surgical fabrics
- Table cloth fabrics
- Table damask
- Tapestry fabric
- Tarlatan
- Tontage
- Terry woven fabrics
- Tickings
- Tobacco cloth
- Towels and toweling
- Tracing cloth
- Trouserings
- Tubing, seamless
- Twills
- Typewriter ribbon cloth
- Umbrella cloth
- Upholstery fabrics
- Velours
- Velveteens
- Velvets
- Voiles
- Waffle cloth
- Wash cloths
- Wignan
- Window shade cloth
- Other (specify)

Man-made and silk broad woven fabrics:

- Acetate fabrics
- Acrylic fabrics
- Automobile fabrics
- Bedspreads
- Blanketings
- Canton crepes
- Crepe satins
- Drapery and drapery fabrics
- Dress fabrics
- Duvelyn
- Elastic fabrics
- Failles
- Fiberglass fabrics
- Flat crepes
- French crepes
- Fur type fabrics
- Georgettes
- Glass woven fabrics
- Jacquard woven fabrics
- Leno fabrics
- Linings

PRODUCTS—Continued

- | | | | |
|-----------------------------------|--------------------------|--|--------------------------|
| Marquisesettes | <input type="checkbox"/> | Narrow fabrics: | |
| Modacrylic fabrics | <input type="checkbox"/> | Apparel webbing | <input type="checkbox"/> |
| Nylon fabrics | <input type="checkbox"/> | Auto wind lace | <input type="checkbox"/> |
| Nytril fabrics | <input type="checkbox"/> | Banding | <input type="checkbox"/> |
| Paper woven fabrics | <input type="checkbox"/> | Beltings | <input type="checkbox"/> |
| Parachute fabrics | <input type="checkbox"/> | Bindings | <input type="checkbox"/> |
| Pile fabrics | <input type="checkbox"/> | Braids | <input type="checkbox"/> |
| Plushes | <input type="checkbox"/> | Cords | <input type="checkbox"/> |
| Polyester fabrics | <input type="checkbox"/> | Corset laces | <input type="checkbox"/> |
| Polyethylene woven fabrics | <input type="checkbox"/> | Elastic narrow fabrics | <input type="checkbox"/> |
| Polypropylene woven fabrics | <input type="checkbox"/> | Elastic webbing | <input type="checkbox"/> |
| Pongee | <input type="checkbox"/> | Electric insulating tapes and braids | <input type="checkbox"/> |
| Poplin | <input type="checkbox"/> | Fringes | <input type="checkbox"/> |
| Quilts | <input type="checkbox"/> | Gimps | <input type="checkbox"/> |
| Rayon fabrics | <input type="checkbox"/> | Glove lining fabrics | <input type="checkbox"/> |
| Saran fabrics | <input type="checkbox"/> | Hatband fabrics | <input type="checkbox"/> |
| Serges | <input type="checkbox"/> | Hose fabrics | <input type="checkbox"/> |
| Shantungs | <input type="checkbox"/> | Labels | <input type="checkbox"/> |
| Shirting fabrics | <input type="checkbox"/> | Lacings | <input type="checkbox"/> |
| Silk fabrics | <input type="checkbox"/> | Ribbons | <input type="checkbox"/> |
| Silk cover fabrics | <input type="checkbox"/> | Rickrack braid | <input type="checkbox"/> |
| Spandex fabrics | <input type="checkbox"/> | Rubber thread and yarns | <input type="checkbox"/> |
| Suiting fabrics | <input type="checkbox"/> | Shoe laces | <input type="checkbox"/> |
| Taffetas | <input type="checkbox"/> | Slide fasteners | <input type="checkbox"/> |
| Tapestry fabrics | <input type="checkbox"/> | Spindle banding | <input type="checkbox"/> |
| Twills | <input type="checkbox"/> | Strapping webs | <input type="checkbox"/> |
| Underwear fabrics | <input type="checkbox"/> | Tapes | <input type="checkbox"/> |
| Upholstery fabrics | <input type="checkbox"/> | Tie tapes | <input type="checkbox"/> |
| Velvets | <input type="checkbox"/> | Trimmings | <input type="checkbox"/> |
| Vinal fabrics | <input type="checkbox"/> | Venetian blind tapes | <input type="checkbox"/> |
| Vinyon fabrics | <input type="checkbox"/> | Webbing | <input type="checkbox"/> |
| Voiles | <input type="checkbox"/> | Wicking | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Zipper tape | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |
| Wool broad woven fabrics: | | Man-made, cotton, and silk yarns: | |
| Alpacas | <input type="checkbox"/> | Acetate yarn | <input type="checkbox"/> |
| Billiard cloths | <input type="checkbox"/> | Acrylic yarn | <input type="checkbox"/> |
| Blankets and blanketings | <input type="checkbox"/> | Carded yarn | <input type="checkbox"/> |
| Felts | <input type="checkbox"/> | Carpet yarn | <input type="checkbox"/> |
| Flannels | <input type="checkbox"/> | Combed yarn | <input type="checkbox"/> |
| Haircloth | <input type="checkbox"/> | Cordage yarn | <input type="checkbox"/> |
| Mohairs | <input type="checkbox"/> | Crochet yarn | <input type="checkbox"/> |
| Overcoatings | <input type="checkbox"/> | Darning yarn | <input type="checkbox"/> |
| Pantings | <input type="checkbox"/> | Embroidery yarn | <input type="checkbox"/> |
| Papermakers' felts | <input type="checkbox"/> | Knitting yarn | <input type="checkbox"/> |
| Serges | <input type="checkbox"/> | Modacrylic yarn | <input type="checkbox"/> |
| Skirtings | <input type="checkbox"/> | Nylon yarn | <input type="checkbox"/> |
| Suitings | <input type="checkbox"/> | Nytril yarn | <input type="checkbox"/> |
| Trouserings | <input type="checkbox"/> | Polyester yarn | <input type="checkbox"/> |
| Upholstery fabrics | <input type="checkbox"/> | Polypropylene yarn | <input type="checkbox"/> |
| Worsted fabrics | <input type="checkbox"/> | Rayon yarn | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | | |

PRODUCTS—Continued

- Saran yarn
- Spinning yarn
- Vinal yarn
- Vinyon yarn
- Weaving yarn
- Other (specify)

- Wool yarns:
 - Crochet yarn
 - Darning yarn
 - Embroidery yarn
 - Knitting yarn
 - Rug yarn
 - Thread yarn
 - Twisting yarn
 - Weaving yarn
 - Other (specify)

- Threads:
 - Cotton thread
 - Crochet thread
 - Darning thread
 - Embroidery thread
 - Hand Knitting thread
 - Nylon thread
 - Polyester thread
 - Rayon thread
 - Sewing thread
 - Spinning thread
 - Tatting thread
 - Other (specify)

- Miscellaneous Textile Goods:
 - Felt Goods:
 - Acoustic felts
 - Automotive felts
 - Carpet cushions
 - Insulating felts
 - Ironing board felts
 - Lining felts
 - Mats
 - Pads and Padding
 - Pipe and boiler covering
 - Polishing felts
 - Pressed wool felts
 - Punched felts
 - Trimming felts
 - Other (specify)

- Lace goods:
 - Bed sets
 - Curtains and curtain fabrics
 - Edgings
 - Galloons

- Lace covers:
 - Chair covers
 - Dresser covers
 - Piano covers
 - Table covers

- Laces:
 - Barmen
 - Bobbinet
 - Levers
 - Nottingham
 - Netting
 - Other (specify)

- Processed waste:
 - Carbonized rags
 - Flock
 - Oakum
 - Packing
 - Wool Shoddy
 - Other (specify)

- Coated fabrics:
 - Type of coating:
 - Impregnated
 - Laminated
 - Metalized
 - Plastics:
 - Pyroxylin
 - Resin
 - Varnish
 - Waxed
 - Other (specify)

- Buckram
- Cambric
- Glass cloth
- Glass matls
- Oilcloth
- Tape
- Tubing
- Yarns
- Other (specify)

- Reinforcing cord and fabric:
 - Cord for reinforcing
 - Fabric for reinforcing:
 - Rubber tires
 - Industrial belting
 - Fuel cells
 - Other (specify)

- Non-woven fabrics:
 - Bonded fiber textiles
 - Bonded fiber fabrics
 - Plastic bonded fiber ribbon

PRODUCTS--Continued

Spunbonded fabrics	<input type="checkbox"/>	Insulator pads	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Wire rope centers	<input type="checkbox"/>
		Other (specify)	<input type="checkbox"/>
Cordage and twine:			
Cordage types:		Rope:	
Abaca	<input type="checkbox"/>	Blasting mats	<input type="checkbox"/>
Sisal	<input type="checkbox"/>	Nets	<input type="checkbox"/>
Henequen	<input type="checkbox"/>	Slings	<input type="checkbox"/>
Hemp	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Jute	<input type="checkbox"/>		
Other fibers (specify)	<input type="checkbox"/>	Twine	<input type="checkbox"/>
Cordage goods:		Fish nets and seines	<input type="checkbox"/>
Cargo nets	<input type="checkbox"/>	Fishing lines	<input type="checkbox"/>
Braided cord	<input type="checkbox"/>	Trawl twine	<input type="checkbox"/>
Fish nets and seines	<input type="checkbox"/>	Binder and baler twine	<input type="checkbox"/>
Fishing lines	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

Agriculture	<input type="checkbox"/>	Financial	<input type="checkbox"/>
Commercial:		Government Service	<input type="checkbox"/>
Business Service	<input type="checkbox"/>	Industrial	<input type="checkbox"/>
Food and Beverage	<input type="checkbox"/>	Insurance	<input type="checkbox"/>
Lodging Service	<input type="checkbox"/>	Legal	<input type="checkbox"/>
Personal Service	<input type="checkbox"/>	Library	<input type="checkbox"/>
Printing and Publishing	<input type="checkbox"/>	Medical Service	<input type="checkbox"/>
Repair Service	<input type="checkbox"/>	Military	<input type="checkbox"/>
Sales	<input type="checkbox"/>	Nonprofit	<input type="checkbox"/>
Communications	<input type="checkbox"/>	Office Service	<input type="checkbox"/>
Conservation	<input type="checkbox"/>	Recreation	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Social Service	<input type="checkbox"/>
Correctional	<input type="checkbox"/>	Subsurface and Space	<input type="checkbox"/>
Educational	<input type="checkbox"/>	Transportation	<input type="checkbox"/>
Entertainment	<input type="checkbox"/>	Utilities	<input type="checkbox"/>
Exhibition Center	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

VENEER AND PLYWOOD MILL WORK

Inventory

WHAT THE WORKER DOES

Below are listed activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates activities concerned with manufacture of:

- Veneer
- Plywood
- Other (specify)

Supervises, and coordinates activities of, workers engaged in:

- Breaking up rafts, and scaling, sorting, grading and sawing logs for operations
- Peeling, clipping, and grading green veneer for further processing
- Glue spreading, layup, and hot pressing plywood sections together
- Finishing hardwood or softwood plywood panels
- Reduction of bark and waste lumber into wood chip or bark products or hog fuel
- Other (specify)

Reviews or studies:

- Production reports
- Daily cutting records
- Job order specifications
- Job orders
- Production schedules
- Drying charts
- Cutting orders
- Shipping orders
- Maintenance and repair reports
- Quality control specifications
- Test forms
- Other (specify)

Plans or determines:

- Production schedules
- Priority of orders
- Sequences of processing orders
- Species and sizes of veneer or plywood to be manufactured
- Manpower requirements
- Manpower utilization
- Machine and equipment requirements and utilization
- Maintenance and repair activities
- Other (specify)

Prepares:

- Work schedules
- Production schedules
- Cutting orders
- Production status reports

WHAT THE WORKER DOES--Continued

Installs, aligns, and secures in position:

- Saws
- Knives
- Cutters
- Pressure rolls
- Guides
- Stops
- Spray guns
- Other (specify)

Presses pushbuttons on machine console or panelboard to:

- Activate power to controls
- Start machine and machine auxiliaries
- Move workpiece into position for machine operations
- Feed workpiece into cutting tools
- Feed tools onto workpiece
- Set machine guides, stops, and tools for specified operations
- Adjust position of tools
- Reprocess material not meeting specifications
- Move workpiece away from processing machine
- Other (specify)

Moves levers or controls, depresses pedals, or turns valves to:

- Set:
 - Pressure of rolls on workpiece
 - Tension on materials
 - Specified temperature, humidity, and air circulation in driers
- Align workpiece against:
 - Stops
 - Guides
 - Aligning mechanisms
- Regulate:
 - Speed of tools
 - Travel of workpiece
 - Lowering and raising of:
 - Guides
 - Stops
 - Aprons
 - Holding devices or clamps
 - Elevators
 - Stacking tables
 - Unstacking tables
 - Other (specify)

Observes:

- Operations of machines for evidences of malfunctions

- Gages, meters, and instruments for insuring readings meet operational specifications

- Flow of material on material handling equipment to:
 - Adjust speed of operation
 - Detect misalignment of material
 - Detect waste material or foreign matter

- Workers for compliance with safety practices and regulations
- Other (specify)

- Material, tool, and equipment requisitions
- Inventory reports
- Quality control reports
- Repair and maintenance reports
- Production schedule revisions
- Other (specify)

Coordinates:

- Flow of materials through production departments
- Operation of department with other department activities
- Worker activities
- Other (specify)

- Assigns workers to specific duties

- Gives workers directions concerning assigned duties

- Inspects machines and equipment for function efficiency

- Enforces worker compliance with:
 - Established work methods and procedures
 - Company regulations
 - Safety rules and practices
 - Other (specify)

- Trains workers in:
 - Setup of machines
 - Setup and operation of machines, machinery, and equipment
 - Controlling equipment
 - Performance of assigned duties
 - Other (specify)

- Evaluates work performance of worker

- Initiates personnel actions

- Keeps records of worker's time and overtime worked

- Recommends changes in processes or use of materials

- Other (specify)

WHAT THE WORKER DOES—Continued

Sets up machines for other workers	<input type="checkbox"/>	Clearances between tools	<input type="checkbox"/>
Sets up and operates machines and equipment	<input type="checkbox"/>	Finished veneer or plywood for conformance with dimensional specifications	<input type="checkbox"/>
Operates machines	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Controls operation of automatic machines or equipment	<input type="checkbox"/>		
Tends:		Marks:	
Presetup or automatic machines	<input type="checkbox"/>	Symbols on products to indicate:	
Material handling equipment to move materials and products	<input type="checkbox"/>	Grade	<input type="checkbox"/>
Drives:		Classification	<input type="checkbox"/>
Material handling machines	<input type="checkbox"/>	Reprocessing instructions	<input type="checkbox"/>
Tug	<input type="checkbox"/>	Identifying data on top of:	
Motorized boats	<input type="checkbox"/>	Stacks of veneer or plywood	<input type="checkbox"/>
Feeds material into machines or onto feed conveyors	<input type="checkbox"/>	Wrapped packages of products	<input type="checkbox"/>
Offbears materials from machines or offbearing conveyors	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>		
Inspects or examines:		Signals workers to stop or start machines or processing operations	<input type="checkbox"/>
Veneer sheets for:		Patches veneer or plywood to improve quality	<input type="checkbox"/>
Knots	<input type="checkbox"/>	Cuts defective sections from product, using hand or power tools	<input type="checkbox"/>
Splits	<input type="checkbox"/>	Prepares patches for repairing defects in products	<input type="checkbox"/>
Pitch lines	<input type="checkbox"/>	Removes materials from material handling equipment	<input type="checkbox"/>
Damage	<input type="checkbox"/>	Stacks material on four-wheel trucks	<input type="checkbox"/>
Grain	<input type="checkbox"/>	Covers finished veneer with paper to prevent scratches	<input type="checkbox"/>
Determining grade and quality	<input type="checkbox"/>	Shovels or throws waste materials into chipper or hog machine conveyor	<input type="checkbox"/>
Markings on plywood for:		Places slats between sheets of veneer or plywood	<input type="checkbox"/>
Species of wood	<input type="checkbox"/>	Affixes labels to products	<input type="checkbox"/>
Grade and quality code	<input type="checkbox"/>	Lubricates machines	<input type="checkbox"/>
Moisture content	<input type="checkbox"/>	Cleans machines, equipment, and work area	<input type="checkbox"/>
Need of reprocessing	<input type="checkbox"/>	Assists in replacing tools in machines	<input type="checkbox"/>
Need for patching	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>		
Measures:			
Length of logs for cutting into machine stock lengths	<input type="checkbox"/>		
Thickness of plywood for determining sanding operations	<input type="checkbox"/>		

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

Management	<input type="checkbox"/>	Quality Control Personnel	<input type="checkbox"/>
Superintendent	<input type="checkbox"/>	Machine Operators	<input type="checkbox"/>
Supervisors	<input type="checkbox"/>	Helpers	<input type="checkbox"/>
Other Supervisors	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

EDUCATION AND TRAINING

Record an "X" to indicate education and training requirements.

Elementary	<input type="checkbox"/>	High School	<input type="checkbox"/>
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EDUCATION AND TRAINING—Continued

- Vocational School On-the-job training
 Technical School Other (specify)

SUBJECTS AND COURSES

Record an "X" to indicate subjects and courses that develop worker skills.

- Subjects and Courses:
- | | | | |
|----------------------------------|--------------------------|---|--------------------------|
| Practical Arithmetic | <input type="checkbox"/> | Veneer Drying | <input type="checkbox"/> |
| Use and Care of Tools | <input type="checkbox"/> | Log Handling Vehicles | <input type="checkbox"/> |
| Use and Care of Machinery | <input type="checkbox"/> | Plywood and Laminating Processes: | |
| Log scaling | <input type="checkbox"/> | Theory of Wood Adhesion | <input type="checkbox"/> |
| Veneer and Plywood Grading | <input type="checkbox"/> | Chemical Nature of Wood Adhesives | <input type="checkbox"/> |
| Maintenance of Cutting Tools: | | Gluing Process Technology | <input type="checkbox"/> |
| Hog and Chipper Knives | <input type="checkbox"/> | Wood Drying Technology | <input type="checkbox"/> |
| Band Saws | <input type="checkbox"/> | Elements of Supervision | <input type="checkbox"/> |
| Circular Saws | <input type="checkbox"/> | Human Relations | <input type="checkbox"/> |
| Wood Seasoning | <input type="checkbox"/> | Estimating | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

- Type of machine or equipment:
- | | | | |
|---|--------------------------|--|--------------------------|
| Automatic | <input type="checkbox"/> | Chain conveyer | <input type="checkbox"/> |
| Automated | <input type="checkbox"/> | Bull-chain conveyer | <input type="checkbox"/> |
| Console controlled | <input type="checkbox"/> | Endless-belt conveyer | <input type="checkbox"/> |
| Electronically controlled | <input type="checkbox"/> | Hoists: | |
| Manually operated | <input type="checkbox"/> | Electric hoist | <input type="checkbox"/> |
| Pushbutton operated | <input type="checkbox"/> | Hydraulic hoist | <input type="checkbox"/> |
| Remote controlled | <input type="checkbox"/> | Lathe charging and centering machine | <input type="checkbox"/> |
| Semi-automatic | <input type="checkbox"/> | Log handling machine | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Log handling boats | <input type="checkbox"/> |
| | | Rail-transfer car | <input type="checkbox"/> |
| | | Rotary sorting table | <input type="checkbox"/> |
| | | Tipple | <input type="checkbox"/> |
| | | Triple-tipple | <input type="checkbox"/> |
| Machines: | | Plywood paneling machines: | |
| Air compressor | <input type="checkbox"/> | Panel presses: | |
| Barking machines: | | Cold press | <input type="checkbox"/> |
| Drum type | <input type="checkbox"/> | Hot clamp press | <input type="checkbox"/> |
| Hydraulic type | <input type="checkbox"/> | Heated multi-tiered hydraulic press | <input type="checkbox"/> |
| Lathe type | <input type="checkbox"/> | Panel sizing machine: | |
| Ring type | <input type="checkbox"/> | Skinner sizing saw | <input type="checkbox"/> |
| Block bucking, grading, sorting machine | <input type="checkbox"/> | Panel length cutoff saw | <input type="checkbox"/> |
| Chipping machine | <input type="checkbox"/> | Panel bagging machine | <input type="checkbox"/> |
| Clipping machine | <input type="checkbox"/> | Sanding machines: | |
| Core splitting machine | <input type="checkbox"/> | Belt sander | <input type="checkbox"/> |
| Glue machines: | | Endless belt sander | <input type="checkbox"/> |
| Edge-gluing machine | <input type="checkbox"/> | Drum sander | <input type="checkbox"/> |
| Glue mixing machine | <input type="checkbox"/> | Drum and belt sanding machines | <input type="checkbox"/> |
| Glue spreading machine | <input type="checkbox"/> | Multi-belt sander | <input type="checkbox"/> |
| Jointer-edge gluing machine | <input type="checkbox"/> | Saws: | |
| Jointer | <input type="checkbox"/> | Drag saw | <input type="checkbox"/> |
| Jointer | <input type="checkbox"/> | Double cut-off saw | <input type="checkbox"/> |
| Material handling machines: | | Gang saw | <input type="checkbox"/> |
| Conveyors | <input type="checkbox"/> | | |
| Apron conveyer | <input type="checkbox"/> | | |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS - Continued

- Groove cutting machine
- Groove cutting and staining machine
- Shearing machine
- Slicing machine
- Splicing machine
- Veneer peeling lath
- Veneer finishing machine:
 - Staining machine
 - Waxing machine
 - Polishing machine
- Multi-spindle drill press
- Other (specify)

Tools:

Handtools:

- Brushes
- Chisels
- Handsaws
- Hand irons
- Hand rollers
- Hatchets
- Hooked poles
- Palm and needle
- Peavies
- Pike poles
- Planes
- Pliers
- Prybars
- Riveting tools
- Screwdrivers
- Staple remover
- Scrapers
- Shovels
- Wrenches
- Spatulas
- Knives
- Band cutters
- Branding iron
- Putty knives
- Brooms
- Shovels

Power handtools:

- Portable mixer
- Portable router
- Portable router and saw
- Putty gun
- Sanding board
- Spray gun
- Stapling gun
- Other (specify)

Equipment:

- Cant steaming vats
- Driers:
 - Drying ovens

- Veneer continuous drying system
- Jet drier and feeding system
- Metal detector equipment
- Moisture measuring equipment
- Acetylene cutting equipment
- Welding equipment
- Electrical charge glue drying equipment
- Other (specify)

Work Aids:

- Measuring instruments
- Cal pers
- Graduated containers
- Micrometers
- Scales:
 - Bench scales
 - Floor scales
 - Steel tapes
 - Scale sticks
- Other (specify)

- Load tickets
- Identification sheets
- Marking pencils
- Tally sheets
- Formulas
- Wax sticks
- Chalk
- Job order specifications
- Job orders
- Requisitions
- Four-wheel trucks
- Paint applicators
- Quality control specifications
- Daily cutting orders
- Daily cutting records
- Rubber stamps
- Tape dispenser
- Tape
- Sponges
- Labels
- Production orders
- Glue report
- Grade-break-down report
- Coating machine roller log
- Production schedules
- Shipping orders
- Labels
- Magnifying devices
- Testing forms
- Testing reports
- Mirrors
- Other (specify)

PRODUCTS

Record an "X" to indicate products processed or manufactured.

Paneling: Hardwood panels <input type="checkbox"/> Softwood panels <input type="checkbox"/> Plywood: Hardwood faced plywood <input type="checkbox"/> Softwood plywood <input type="checkbox"/> Siding <input type="checkbox"/>	Veneer: Faced veneer <input type="checkbox"/> Hardwood veneer <input type="checkbox"/> Non-faced veneer <input type="checkbox"/> Softwood veneer <input type="checkbox"/> Technical veneer <input type="checkbox"/> Other (specify) <input type="checkbox"/>
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ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

Agriculture <input type="checkbox"/> Commercial: Business Service <input type="checkbox"/> Food and Beverage <input type="checkbox"/> Lodging Service <input type="checkbox"/> Personal Service <input type="checkbox"/> Printing and Publishing <input type="checkbox"/> Repair Service <input type="checkbox"/> Sales <input type="checkbox"/> Communications <input type="checkbox"/> Conservation <input type="checkbox"/> Construction <input type="checkbox"/> Correctional <input type="checkbox"/> Educational <input type="checkbox"/> Entertainment <input type="checkbox"/> Exhibition Center <input type="checkbox"/>	Financial <input type="checkbox"/> Government Service <input type="checkbox"/> Industrial <input type="checkbox"/> Insurance <input type="checkbox"/> Legal <input type="checkbox"/> Library <input type="checkbox"/> Medical Service <input type="checkbox"/> Military <input type="checkbox"/> Nonprofit <input type="checkbox"/> Office Service <input type="checkbox"/> Recreation <input type="checkbox"/> Social Service <input type="checkbox"/> Subsurface and Space <input type="checkbox"/> Transportation <input type="checkbox"/> Utilities <input type="checkbox"/> Other (specify) <input type="checkbox"/>
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WOODWORKING

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Directs and coordinates woodworking activities in a:

- Planing mill
- Wooden container manufacturing company
- Cooperage shop
- Wood fabricating and preserving company
- Plant manufacturing turned, shaped, or carved wooden goods or articles
- Other (specify)

Supervises, and coordinates activities of, workers engaged in:

- Setting up woodworking machines for production operations
- Setting up and operating woodworking machines to produce wood products
- Tending pre-set up machines to produce wood products or parts
- Laying out work for woodworking operations
- Fitting and assembling fabricated wood parts into specified products
- Inspecting parts and final products for conformance with standards
- Handworking wood parts into finished products
- Controlling equipment to treat wood parts or products
- Other (specify)

Plans:

- Manpower requirements
- Work schedules
- Production procedures
- Machine requirements
- Worker training requirements
- Inspection procedures
- Other (specify)

Prepares:

- Cost estimates for jobs
- Estimates on man-hour requirements
- Worker schedule
- Evaluations on worker performance
- Records of production and worker activities
- Reports on production and department activities
- Other (specify)

Trains workers in:

- Overall craft duties
- Setup of machines and equipment
- Operation of machines and equipment

WHAT THE WORKER DOES - Continued

- | | | | |
|--|--------------------------|---|--------------------------|
| Safety practices | <input type="checkbox"/> | Product layout methods and procedures | <input type="checkbox"/> |
| Work practices | <input type="checkbox"/> | Product fabricating methods and
procedures | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Product assembly methods and
procedures | <input type="checkbox"/> |
| Demonstrates: | | Machine or equipment control
settings | <input type="checkbox"/> |
| Setup procedures on woodworking machines | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Use of measuring devices and work aids | <input type="checkbox"/> | | |
| Other (specify) | <input type="checkbox"/> | | |
| Assigns workers to specific duties | <input type="checkbox"/> | Selects and installs on drum, arbor,
spindle, or in chuck of machine
specified: | |
| Inspects parts or products for conformance
with specifications | <input type="checkbox"/> | Knives | <input type="checkbox"/> |
| Interprets production orders, product
specifications, and drawings for worksets | <input type="checkbox"/> | Saws | <input type="checkbox"/> |
| Advises workers on methods and procedures
for solving work problems | <input type="checkbox"/> | Cutters | <input type="checkbox"/> |
| Enforces worker compliance with
established work procedures and safety
rules | <input type="checkbox"/> | Drills and bits | <input type="checkbox"/> |
| Requisitions tools, materials, and
equipment | <input type="checkbox"/> | Profiling tools | <input type="checkbox"/> |
| Coordinates worker and department
activities | <input type="checkbox"/> | Abrasive or sanding materials | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Installs, aligns, and secures in machine: | |
| | | Stops | <input type="checkbox"/> |
| | | Guides | <input type="checkbox"/> |
| | | Jigs or holding fixtures | <input type="checkbox"/> |
| | | Workpiece | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |
| | | | |
| Sets up machines or equipment for
other workers | <input type="checkbox"/> | Turns handwheels, opens valves, or
moves levers and controls to: | |
| Sets up and operates variety of woodworking
machines | <input type="checkbox"/> | Start machine or equipment | <input type="checkbox"/> |
| Operates woodworking machine | <input type="checkbox"/> | Adjust angle of machine table | <input type="checkbox"/> |
| Controls operation of equipment | <input type="checkbox"/> | Feed workpiece into cutting tools | <input type="checkbox"/> |
| Tends pre-setup or automatic machines | <input type="checkbox"/> | Feed tools onto workpiece | <input type="checkbox"/> |
| Assists worker in operating machine or
equipment | <input type="checkbox"/> | Set cutter heads or tools for prescribed
operation | <input type="checkbox"/> |
| Feeds workpiece or material into machine | <input type="checkbox"/> | Maintain tension on materials | <input type="checkbox"/> |
| Offbears workpiece or product from
machine | <input type="checkbox"/> | Set prescribed clearances between
rollers | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Adjust operation of machine | <input type="checkbox"/> |
| | | Reposition guides, stops, and rollers | <input type="checkbox"/> |
| | | Regulate rotation speed of material | <input type="checkbox"/> |
| | | Regulate cutting speed of and pressure of
rollers on workpiece | <input type="checkbox"/> |
| | | Regulate temperatures, humidity, and
material flow | <input type="checkbox"/> |
| | | Stop machine | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |
| | | | |
| Reads, reviews, or examines: | | Lays out on workpiece: | |
| Blueprints | <input type="checkbox"/> | Patterns | <input type="checkbox"/> |
| Drawings | <input type="checkbox"/> | Templates | <input type="checkbox"/> |
| Product samples | <input type="checkbox"/> | Cutting lines | <input type="checkbox"/> |
| Product specifications | <input type="checkbox"/> | Product design | <input type="checkbox"/> |
| Material lists | <input type="checkbox"/> | Inter-related parts | <input type="checkbox"/> |
| Job orders | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Production orders | <input type="checkbox"/> | | |
| Processing specifications | <input type="checkbox"/> | | |
| Other (specify) | <input type="checkbox"/> | | |
| | | | |
| Determines from data: | | Fabricates wooden parts of products, using: | |
| Setup of machines or equipment | <input type="checkbox"/> | Woodworking machines | <input type="checkbox"/> |
| Machine operations required | <input type="checkbox"/> | | |
| Sequences of work or machine operations | <input type="checkbox"/> | | |
| Type of cutting head or woodworking tool
required | <input type="checkbox"/> | | |

WHAT THE WORKER DOES--Continued

Woodworking handtools	<input type="checkbox"/>	Holes	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Splits	<input type="checkbox"/>
Assembles parts into products by:		Faulty assembly	<input type="checkbox"/>
Matching grain of inter-related parts	<input type="checkbox"/>	Missing hardware	<input type="checkbox"/>
Boring holes in parts for fasteners	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Placing inter-related parts together to ascertain fit	<input type="checkbox"/>	Measures parts or products for conformance with:	
Handworking parts to specified fit, using woodworking tools	<input type="checkbox"/>	Dimensional specifications	<input type="checkbox"/>
Fitting and fastening parts together, using:		Specified alignment and squareness	<input type="checkbox"/>
Nails	<input type="checkbox"/>	Model or sample	<input type="checkbox"/>
Dowels	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Screws	<input type="checkbox"/>	Grades:	
Glue	<input type="checkbox"/>	Lumber according to standard classifications	<input type="checkbox"/>
Hinges	<input type="checkbox"/>	Wood products according to extent of defects	<input type="checkbox"/>
Pls	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Staples	<input type="checkbox"/>	Marks lumber or wood products for rework or salvage of parts	<input type="checkbox"/>
Bolts	<input type="checkbox"/>	Stacks lumber or wood products	<input type="checkbox"/>
Adjusting fit of moving parts of product to specifications	<input type="checkbox"/>	Fills wood pores, cracks, or other indentions with filler materials	<input type="checkbox"/>
Attaching hardware to parts to complete assembly	<input type="checkbox"/>	Removes foreign material from parts	<input type="checkbox"/>
Repositioning moving parts to obtain specified fit and prevent binding	<input type="checkbox"/>	Sands rough spots to prepare surfaces for finishing	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Brushes surfaces with glue to prepare for application of other materials	<input type="checkbox"/>
Inspects:		Marks or stamps grade on products	<input type="checkbox"/>
Milled or planed lumber for defects, as:		Changes cutter heads or other tools in machines	<input type="checkbox"/>
Knots	<input type="checkbox"/>	Loads and unloads materials into or from: Transportation conveyances	<input type="checkbox"/>
Stains	<input type="checkbox"/>	Drying kilns	<input type="checkbox"/>
Pitch pockets	<input type="checkbox"/>	Stacks lumber or products in storage yard	<input type="checkbox"/>
Worm holes	<input type="checkbox"/>	Reworks products to specifications	<input type="checkbox"/>
Defective milling or planing	<input type="checkbox"/>		
Wood products for defects, as:			
Mismatched grain	<input type="checkbox"/>		
Blemishes	<input type="checkbox"/>		
Loose joints	<input type="checkbox"/>		

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

Management	<input type="checkbox"/>	Helpers	<input type="checkbox"/>
Supervisors	<input type="checkbox"/>	Laborers	<input type="checkbox"/>
Other Supervisors	<input type="checkbox"/>	Apprentices	<input type="checkbox"/>
Machine Operators	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Craftsman	<input type="checkbox"/>		

EDUCATION AND TRAINING

Record an "X" to indicate education and training requirements.

Elementary	<input type="checkbox"/>	Jr. College	<input type="checkbox"/>
High School	<input type="checkbox"/>	Technical Training	<input type="checkbox"/>

EDUCATION AND TRAINING—Continued

Vocational Training On-the-job Training
 Military Training Other (specify)

SUBJECTS AND COURSES

Record an "X" to indicate courses and subjects that develop skills for the occupation.

Related Subjects and Courses:		Principles of Layout Processes	<input type="checkbox"/>
Practical Arithmetic	<input type="checkbox"/>	Advanced Layout Processes	<input type="checkbox"/>
Applied Chemistry	<input type="checkbox"/>	Fundamentals of Stock Billing	<input type="checkbox"/>
Care and Use of Handtools	<input type="checkbox"/>	Applied Stock Billing Procedures	<input type="checkbox"/>
Care and Use of Measuring Instruments	<input type="checkbox"/>	Introduction to Hand Woodworking	
Blueprint Reading	<input type="checkbox"/>	Tools	<input type="checkbox"/>
Mechanical Drawing	<input type="checkbox"/>	Fundamental Application of Handtool	
Trade Terminology	<input type="checkbox"/>	Skills	<input type="checkbox"/>
Safety Practices and Regulations	<input type="checkbox"/>	Hand and Power Tool Applications	<input type="checkbox"/>
Human Relations	<input type="checkbox"/>	Introduction to Machine Tools	<input type="checkbox"/>
Elements of Supervision	<input type="checkbox"/>	Fundamentals of Machine Operations	<input type="checkbox"/>
Efficient Use of Materials	<input type="checkbox"/>	Advanced Machine Operations	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Materials of Cabinetmaking	<input type="checkbox"/>
Cabinet Making and Millwork:		Standards of Construction	<input type="checkbox"/>
History and Orientation of Mill:		Advanced Cabinetry	<input type="checkbox"/>
Cabinet Work	<input type="checkbox"/>	Estimating of Cabinetry and Paneling	<input type="checkbox"/>
Applied Blueprint Reading and		Fundamentals of Wood Molder	<input type="checkbox"/>
Detailing	<input type="checkbox"/>	Knife Grinding	<input type="checkbox"/>
Advanced Detailing	<input type="checkbox"/>	Detailing and Stock Billing	<input type="checkbox"/>
		Other (specify)	<input type="checkbox"/>

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

Machine types:		Carving machine:	
Automatic	<input type="checkbox"/>	Single spindle carver	<input type="checkbox"/>
Dual purpose	<input type="checkbox"/>	Multi-spindle carver	<input type="checkbox"/>
Electronic	<input type="checkbox"/>	Chipper	<input type="checkbox"/>
Manual controlled	<input type="checkbox"/>	Chucking machines:	
Multi-purpose	<input type="checkbox"/>	Chucking and sawing machine	<input type="checkbox"/>
Semi-automatic	<input type="checkbox"/>	Double end chucking machine	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Clothespin machine	<input type="checkbox"/>
Machines:		Corrugated fastener machine	<input type="checkbox"/>
Adzing and boring machine	<input type="checkbox"/>	Croze machine	<input type="checkbox"/>
Air compressor	<input type="checkbox"/>	Dadoing machine	<input type="checkbox"/>
Bending press	<input type="checkbox"/>	Dovetail machine	<input type="checkbox"/>
Boring machines:		Dowel machines:	
Cluster boring machine	<input type="checkbox"/>	Doweling machine	<input type="checkbox"/>
Double end boring machine	<input type="checkbox"/>	Dowel inserting machine	<input type="checkbox"/>
Gang boring machine	<input type="checkbox"/>	Dowel pointer machine	<input type="checkbox"/>
Horizontal boring machine	<input type="checkbox"/>	Drill press	<input type="checkbox"/>
Multi-spindle boring machine	<input type="checkbox"/>	Embossing machine	<input type="checkbox"/>
Vertical boring machine	<input type="checkbox"/>	Framing mill	<input type="checkbox"/>
Box blanking machine	<input type="checkbox"/>	Gluing machine	<input type="checkbox"/>
Box branding machine	<input type="checkbox"/>	Grinding machine	<input type="checkbox"/>
Box lining machine	<input type="checkbox"/>	Hoop driving machine	<input type="checkbox"/>
		Incising machine	<input type="checkbox"/>

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

- Jointer machine
- Kiln rail transfer machine
- Linderman machine
- Mortizing machines:
 - Chain mortiser
 - Chisel mortiser
 - End mortiser
- Planer
- Plugging machine
- Pole peeling machine
- Router:
 - Single spindle router
 - Multi-spindle router
- Sanders:
 - Belt sander
 - Cylinder sander
 - Contour sander
 - Disk sander
 - Drum sander
 - Endless belt sander
 - Lathe sander
 - Multiple drum sander
 - Speed belt sander
 - Stroke belt sander
 - Turning sander
- Saws:
 - Band rip saw
 - Bandsaw
 - Band scroll saw
 - Casey saw
 - Circular rip saw
 - Dado saw
 - Double cutoff saw
 - Gang rip saw
 - Jigsaw
 - Miter saw
 - Multiple cutoff saw
 - Radial arm saw
 - Rip saw
 - Swinging cutoff saw
 - Table cutoff saw
 - Tilting saw
 - Treadle cutoff saw
 - Variety saw
 - Warble saw
- Shapers:
 - Double spindle shaper
 - Profile shaper
- Shaver machine
- Squeezer machine
- Tenoner machine
 - Double end tenoner machine
- Tying machine:
 - Woodworking lathes:
 - Back roll lathe

- Copy lathe
- Handle lathe
- Swing type lathe
- Other (specify)
- Tools:
 - Adzes
 - Bits
 - Chisels
 - Counterbores
 - Countersinks
 - Files
 - Gouges
 - Hammers
 - Levels
 - Mallets
 - Planes
 - Pliers
 - Putty knives
 - Rasps
 - Scribers
 - Screwdrivers
 - Vises
 - Wrenches
 - Other (specify)
- Equipment:
 - Drying ovens
 - Kilns
 - Glue heating units
 - Preserving and impregnating equipment
 - Retorts
 - Other (specify)
- Work Aids:
 - Clamps
 - Calipers
 - Diagrams
 - Blueprints
 - Drawings
 - Patterns
 - Production orders
 - Templates
 - Product specifications
 - Holding fixtures
 - Jigs
 - Rules
 - Sample product
 - Model
 - Sketches
 - Work orders
 - Rework orders
 - Inspection reports
 - Report forms
 - Straight edge
 - Square
 - Other (specify)

MILLWORK AND RELATED WOOD PRODUCTS

Record an "X" to indicate product worked on or produced.

Millwork Products:

- Awnings
- Blinds (shutters)
- Brackets
- Cabinets (to be built in)
- Door trim
- Doors
- Dormers
- Floor baseboard
- Garage doors (overhead)
- Jalousies (wood frame)
- Louver windows (wood frame)
- Medicine cabinets (to be built in)
- Moldings
- Newel posts
- Ornamental woodwork:
 - Cornices
 - Mantels
- Porch work
- Sash, door and window
- Shutters, door and window
- Stair railings
- Staircases and stairs
- Trellises
- Venetian blind slats
- Waincots
- Weather stripping
- Window screens (wood frames)
- Other (specify)

Prefabricated Buildings and Structural

- Members:
 - Arches (laminted lumber)
- Prefabricated:
 - Buildings
 - Chicken coops
 - Corn cribs
 - Houses
 - Marinas
 - Portable buildings
 - Sauna rooms
- Structural members:
 - Trusses
 - Timbers
- Other (specify)

Wooden Containers:

- Nailed and Lock Corner Boxes and Shook:
 - Ammunition boxes
 - Box cleats
 - Boxes
 - Carrier trays
 - Cigar boxes

- Egg cases
- Greenhouse flats
- Packing cases
- Shipping cases
- Shook
- Tool chests
- Trunk slats
- Wirebound Boxes and Crates:
 - Boxes
 - Crates:
 - Berry
 - Butter
 - Fruit
 - Vegetable
- Veneer and Plywood Containers:
 - Baskets
 - Fruit
 - Vegetable
 - Berry cups
 - Drums
 - Hampers
 - Market baskets
 - Pails
- Coopered Products:
 - Barrels
 - Buckets
 - Casks
 - Firkins and Kits
 - Hogsheads
 - Kegs
 - Tanks
 - Tierces
 - Tubs
 - Vats
- Shaped Wood Articles:
 - Applicators
 - Bakers equipment
 - Bearings
 - Beekeeping supplies
 - Bentwood products
 - Blocks:
 - Butcher blocks
 - Tackle
 - Tailor's pressing blocks
 - Boards:
 - Bagasse
 - Bulletin:
 - lip
 - Ironing
 - Meat
 - Pastry
 - Boot and shoe lasts
 - Bowls

MILLWORK AND RELATED WOOD PRODUCTS—Continued

Bungs	<input type="checkbox"/>	Masts	<input type="checkbox"/>
Bushings	<input type="checkbox"/>	Mauls	<input type="checkbox"/>
Cloth winding reels	<input type="checkbox"/>	Moldings for picture frames	<input type="checkbox"/>
Clothes horses	<input type="checkbox"/>	Oars	<input type="checkbox"/>
Clothes poles	<input type="checkbox"/>	Paint sticks	<input type="checkbox"/>
Clothespins	<input type="checkbox"/>	Pencil slots	<input type="checkbox"/>
Clubs (policemen)	<input type="checkbox"/>	Plugs	<input type="checkbox"/>
Curtain stretchers	<input type="checkbox"/>	Poles:	
Dishes	<input type="checkbox"/>	Flagpoles	<input type="checkbox"/>
Dowels	<input type="checkbox"/>	Tentpoles	<input type="checkbox"/>
Extension plants	<input type="checkbox"/>	Pulleys	<input type="checkbox"/>
Faucets	<input type="checkbox"/>	Rollers	<input type="checkbox"/>
Fellies	<input type="checkbox"/>	Rolling pins	<input type="checkbox"/>
Fenang	<input type="checkbox"/>	Rulers	<input type="checkbox"/>
Frames:		Rules	<input type="checkbox"/>
Medallion	<input type="checkbox"/>	Saddle trees	<input type="checkbox"/>
Mirror	<input type="checkbox"/>	Scaffolds	<input type="checkbox"/>
Photograph	<input type="checkbox"/>	Scoops	<input type="checkbox"/>
Picture	<input type="checkbox"/>	Shoe stretches	<input type="checkbox"/>
Furniture inlays	<input type="checkbox"/>	Shoe trees	<input type="checkbox"/>
Garment hangers	<input type="checkbox"/>	Signboards	<input type="checkbox"/>
Gavels	<input type="checkbox"/>	Skewers	<input type="checkbox"/>
Grain measures	<input type="checkbox"/>	Skids	<input type="checkbox"/>
Hammers (meat)	<input type="checkbox"/>	Spars	<input type="checkbox"/>
Hampers	<input type="checkbox"/>	Spigots	<input type="checkbox"/>
Handles for products	<input type="checkbox"/>	Spokes	<input type="checkbox"/>
Hubs	<input type="checkbox"/>	Spools	<input type="checkbox"/>
Industrial platforms	<input type="checkbox"/>	Stakes	<input type="checkbox"/>
Pallets	<input type="checkbox"/>	Toilet seats	<input type="checkbox"/>
Knobs	<input type="checkbox"/>	Toothpicks	<input type="checkbox"/>
Ladders	<input type="checkbox"/>	Trays	<input type="checkbox"/>
Ladder jacks	<input type="checkbox"/>	Trophy bases	<input type="checkbox"/>
Last sole patterns	<input type="checkbox"/>	Wood floor	<input type="checkbox"/>
Letters	<input type="checkbox"/>	Woodenware	<input type="checkbox"/>
Mallets	<input type="checkbox"/>	Yardsticks	<input type="checkbox"/>
Mashers	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

Agriculture	<input type="checkbox"/>	Entertainment	<input type="checkbox"/>
Commercial:		Exhibition Center	<input type="checkbox"/>
Business Service	<input type="checkbox"/>	Financial	<input type="checkbox"/>
Food and Beverage	<input type="checkbox"/>	Government Service	<input type="checkbox"/>
Lodging Service	<input type="checkbox"/>	Industrial	<input type="checkbox"/>
Personal Service	<input type="checkbox"/>	Insurance	<input type="checkbox"/>
Printing and Publishing	<input type="checkbox"/>	Legal	<input type="checkbox"/>
Repair Service	<input type="checkbox"/>	Library	<input type="checkbox"/>
Sales	<input type="checkbox"/>	Medical Service	<input type="checkbox"/>
Communications	<input type="checkbox"/>	Military	<input type="checkbox"/>
Conservation	<input type="checkbox"/>	Nonprofit	<input type="checkbox"/>
Construction	<input type="checkbox"/>	Office Service	<input type="checkbox"/>
Correctional	<input type="checkbox"/>	Recreation	<input type="checkbox"/>
Educational	<input type="checkbox"/>	Social Service	<input type="checkbox"/>

ENVIRONMENTAL SETTING—Continued

Subsurface and Space Utilities
Transportation Other (specify)

EXAMPLE OF DATA GATHERING USING A TASK INVENTORY

The following pages illustrate the use of a Task Inventory in collecting information from a worker. A CARPENTER who has worked in the craft for many years was interviewed using the inventory for "Building and Construction Trades." The items checked indicate the range of experience which a typical worker has gained. It will be noted that even some supervisory tasks have been checked because of work performed as a lead CARPENTER. The information from a completed Task Inventory can be used to develop a job description and to identify specific knowledges and skills which are required to perform the work. The user can also gain information from items not checked.

Typically, a CARPENTER constructs, erects, installs, and repairs structures the primary components of which are made of wood, using carpentry handtools and power tools and following blueprints or sketches. The worker also builds stairs, install partitions and cabinets, hangs doors, installs metal hardware on wood parts, weather strips and insulates wooden structures, fits and installs trim, wallboard, paneling and windows, and lays sub-floor and hardwood flooring. The worker builds and erects foundation forms and attaches siding of various types to the exterior of buildings. Almost any structure utilizing wood framing or scaffolding requires the CARPENTER'S craft in building. Some workers specialize in certain aspects of the craft and perform only those items peculiar to the specialty and belong to union locals that are designated for that type of work. The following inventory with marked responses indicates the worker's involvement with specific job factors.

**EXAMPLE
BUILDING AND CONSTRUCTION TRADES: CARPENTER**

Inventory

WHAT THE WORKER DOES

Listed below are activities that might be involved in a job-worker situation. Record an "X" after each activity relating to the job being analyzed.

Supervises and coordinates activities of workers engaged in building and construction craft activities as:

- Carpentry
- Plastering
- Waterproofing
- Concrete masonry
- Bricklaying
- Stone setting
- Tile setting
- Pipefitting
- Structural steel erection
- Plumbing
- Asbestos and insulation work
- Paperhanging
- Lathing
- Pipelaying
- Concrete and asphalt paving
- Floorlaying
- Glaziery
- Roofing
- Rigging
- Elevator constructing
- Tank building and erecting
- Marble setting
- Monument setting
- House moving
- Ornamental and architectural iron erection
- Mining
- Drywall applying
- Insulating work
- Other (specify)

Operating equipment as:

- Grading equipment
- Excavating equipment
- Concrete paving equipment
- Asphalt paving equipment
- Dredging equipment
- Pile driving equipment
- Well drilling equipment
- Tunneling equipment
- Other (specify)

WHAT THE WORKER DOES—Continue!

Materials:		Pave highways and streets	<input type="checkbox"/>
Handling equipment	<input type="checkbox"/>	Dredge sand and other materials	<input type="checkbox"/>
Transporting equipment	<input type="checkbox"/>	Drive pilings	<input type="checkbox"/>
Mixing equipment	<input type="checkbox"/>	Drill wells	<input type="checkbox"/>
Pumping equipment	<input type="checkbox"/>	Bore tunnels	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Handle materials	<input type="checkbox"/>
		Transport materials	<input type="checkbox"/>
Tending:		Mix materials	<input type="checkbox"/>
Concrete or plaster:		Pump materials	<input type="checkbox"/>
Batching equipment	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Pumping equipment	<input type="checkbox"/>		
Spraying equipment	<input type="checkbox"/>	Moves levers, turns controls, or	
Other (specify)	<input type="checkbox"/>	depresses pedals to:	
		Start or stop equipment	<input type="checkbox"/>
Plans and determines:		Guide or steer equipment	<input type="checkbox"/>
Manpower requirements	<input type="checkbox"/>	Position attachments for specific	
Worker schedules	<input type="checkbox"/>	operations	<input type="checkbox"/>
Construction procedures	<input checked="" type="checkbox"/>	Perform operations	<input type="checkbox"/>
Maintenance procedures	<input checked="" type="checkbox"/>	Reposition attachments or	
Inspection requirements	<input checked="" type="checkbox"/>	equipment	<input type="checkbox"/>
Prepares work schedules	<input checked="" type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Assigns workers to duties	<input checked="" type="checkbox"/>		
Gives work directions to workers	<input checked="" type="checkbox"/>	Tends equipment or machines to:	
Interprets building plans, structural		Mix batches of concrete, plaster, or other	
specifications, drawings, and technical		covering materials	<input type="checkbox"/>
data	<input checked="" type="checkbox"/>	Pump concrete, plaster, or other	
Trains workers in:		materials	<input type="checkbox"/>
Craft duties	<input checked="" type="checkbox"/>	Spray materials on structure	<input type="checkbox"/>
Operation of machines and equipment	<input checked="" type="checkbox"/>	Maintain pressure in underground	
Safety practices and regulations	<input checked="" type="checkbox"/>	structures or chambers (locks)	<input type="checkbox"/>
Advises workers in methods and procedures		Other (specify)	<input type="checkbox"/>
for solving work problems	<input checked="" type="checkbox"/>		
Coordinates:		Constructs, erects, or builds:	
Craft activities with other craft activities	<input type="checkbox"/>	Wooden structures and fixtures	<input checked="" type="checkbox"/>
Worker activities	<input checked="" type="checkbox"/>	Structural steel framework	<input type="checkbox"/>
Building inspection activities	<input type="checkbox"/>	Tanks	<input type="checkbox"/>
Enforces worker compliance with		Concrete forms and pouring chutes	<input checked="" type="checkbox"/>
established work procedures, regulations,		Scaffolding	<input checked="" type="checkbox"/>
and safety rules	<input type="checkbox"/>	Fences	<input checked="" type="checkbox"/>
Recommends promotions, demotions,		Metal framework	<input type="checkbox"/>
discharges, and disciplinary		Stairways	<input checked="" type="checkbox"/>
actions	<input checked="" type="checkbox"/>	Elevators or moving stairways	<input type="checkbox"/>
Evaluates workers performance	<input checked="" type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Requisitions materials, tools, and			
equipment	<input checked="" type="checkbox"/>	Sets:	
Requisitions machine maintenance		Marble slabs or blocks	<input type="checkbox"/>
and repair	<input checked="" type="checkbox"/>	Stone	<input type="checkbox"/>
Keeps records of workers performance	<input type="checkbox"/>	Tile	<input type="checkbox"/>
Prepares reports on construction or		Artificial stone	<input type="checkbox"/>
maintenance activities	<input checked="" type="checkbox"/>	Monuments	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Operates equipment to:		Fits and installs:	
Grade construction sites	<input type="checkbox"/>	Steam, gas, water, or acid piping systems	<input type="checkbox"/>
Excavate earth and other materials	<input type="checkbox"/>	Plumbing systems and fixtures	<input type="checkbox"/>

WHAT THE WORKER DOES—Continued

- | | | | |
|---|-------------------------------------|---|-------------------------------------|
| Pneumatic tube conveyor systems | <input type="checkbox"/> | Concrete surfaces | <input type="checkbox"/> |
| Pneumatic control system piping | <input type="checkbox"/> | Plaster surfaces | <input type="checkbox"/> |
| Cabinets | <input checked="" type="checkbox"/> | Stucco surfaces | <input type="checkbox"/> |
| Window frames | <input checked="" type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Partitions | <input checked="" type="checkbox"/> | Reviews, studies, or analyzes: | |
| Doors | <input checked="" type="checkbox"/> | Blueprints | <input checked="" type="checkbox"/> |
| Door frames | <input checked="" type="checkbox"/> | Sketches | <input checked="" type="checkbox"/> |
| Weather stripping | <input checked="" type="checkbox"/> | Building plans | <input checked="" type="checkbox"/> |
| Wooden trim | <input checked="" type="checkbox"/> | Architects drawings | <input checked="" type="checkbox"/> |
| Metal hardware | <input checked="" type="checkbox"/> | Bills of materials | <input checked="" type="checkbox"/> |
| Structural steel | <input checked="" type="checkbox"/> | Work order specifications | <input checked="" type="checkbox"/> |
| Structural glass | <input type="checkbox"/> | Structural specifications | <input checked="" type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Construction plans | <input checked="" type="checkbox"/> |
| Lays: | | Contract specifications | <input checked="" type="checkbox"/> |
| Brick structural tile and block materials | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Terrazzo floors | <input type="checkbox"/> | Determines: | |
| Flooring and subflooring | <input checked="" type="checkbox"/> | Building sequences | <input checked="" type="checkbox"/> |
| Floor coverings and foundation materials | <input type="checkbox"/> | Construction sequences | <input checked="" type="checkbox"/> |
| Pipe for storm drains, sewers, and water mains | <input type="checkbox"/> | Installation sequences | <input checked="" type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Methods and procedures for specified work | <input checked="" type="checkbox"/> |
| Applies: | | Other (specify) | <input type="checkbox"/> |
| Composition weatherboard on exterior surfaces | <input checked="" type="checkbox"/> | Calculates: | |
| Siding materials on exterior surfaces | <input checked="" type="checkbox"/> | Material requirements | <input checked="" type="checkbox"/> |
| Decorative and protective paint on building surfaces | <input type="checkbox"/> | Equipment requirements | <input checked="" type="checkbox"/> |
| Stucco on exterior surfaces | <input type="checkbox"/> | Job costs | <input checked="" type="checkbox"/> |
| Plasterboard onto walls and ceilings | <input checked="" type="checkbox"/> | Building angles and courses | <input checked="" type="checkbox"/> |
| Waterproofing material on exterior surfaces | <input checked="" type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Calking compounds in cracks and crevices | <input checked="" type="checkbox"/> | Measures: | |
| Coats of plaster on interior surfaces | <input type="checkbox"/> | Structural areas | <input type="checkbox"/> |
| Sizing compound on work surfaces | <input type="checkbox"/> | Dimensions of structure | <input checked="" type="checkbox"/> |
| Roofing materials on structures | <input type="checkbox"/> | Material length, width, or thickness | <input type="checkbox"/> |
| Insulating materials on equipment and piping systems | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Selects specified materials | <input type="checkbox"/> |
| Fastens: | | Lays out: | |
| Lathing materials on walls and ceilings | <input type="checkbox"/> | Reference points and lines | <input checked="" type="checkbox"/> |
| Acoustical tile on ceilings | <input type="checkbox"/> | Material cutting lines | <input checked="" type="checkbox"/> |
| Facing brick on sides of structures | <input type="checkbox"/> | Assembly lines | <input type="checkbox"/> |
| Insulation materials onto walls, floors, and ceilings | <input type="checkbox"/> | Work guidelines | <input checked="" type="checkbox"/> |
| Paneling on walls | <input checked="" type="checkbox"/> | Foundation lines | <input checked="" type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Grading lines | <input checked="" type="checkbox"/> |
| Blows insulating materials into spaces of structures | <input type="checkbox"/> | Fence lines | <input checked="" type="checkbox"/> |
| Finishes: | | Other (specify) | <input type="checkbox"/> |
| Wooden floors | <input checked="" type="checkbox"/> | Prepares surfaces or areas for work by: | |
| | | Sanding | <input checked="" type="checkbox"/> |
| | | Cleaning | <input checked="" type="checkbox"/> |
| | | Chipping | <input type="checkbox"/> |
| | | Scraping | <input type="checkbox"/> |

WHAT THE WORKER DOES—Continued

- | | | | |
|--|-------------------------------------|---|-------------------------------------|
| Filling holes, cracks, crevices, or joints | <input type="checkbox"/> | Braces | <input checked="" type="checkbox"/> |
| Scaling | <input type="checkbox"/> | Putty | <input type="checkbox"/> |
| Sealing | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Removing fixtures or obstacles | <input type="checkbox"/> | Mixes by hand machine: | |
| Masking or covering non-work areas | <input type="checkbox"/> | Paint pigments, vehicle, and coloring | <input type="checkbox"/> |
| Removing rough or defective surfaces | <input type="checkbox"/> | Wallpaper paste | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Sealing compounds | <input type="checkbox"/> |
| Cuts material into specified: | | Mortar | <input type="checkbox"/> |
| Shape | <input checked="" type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Size | <input checked="" type="checkbox"/> | Verifies alinement of: | |
| Length | <input checked="" type="checkbox"/> | Parts | <input checked="" type="checkbox"/> |
| Width | <input checked="" type="checkbox"/> | Structures | <input checked="" type="checkbox"/> |
| Thickness | <input checked="" type="checkbox"/> | Stone | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Brick | <input type="checkbox"/> |
| Spreads: | | Installation | <input type="checkbox"/> |
| Concrete to specified depth | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Mortar on brick, structural tile, blocks and other materials | <input type="checkbox"/> | Breaks or cuts off excess material | <input checked="" type="checkbox"/> |
| Stucco onto exterior surfaces | <input type="checkbox"/> | Drills hole for: | |
| Plaster onto walls or over lathing | <input type="checkbox"/> | Attaching material on structures | <input checked="" type="checkbox"/> |
| Mastic or other adhesive on floor or foundation coating | <input type="checkbox"/> | Installing material | <input checked="" type="checkbox"/> |
| Paste on wallpaper | <input type="checkbox"/> | Fills joints with: | |
| Putty on sash of windows | <input type="checkbox"/> | Calking materials | <input type="checkbox"/> |
| Other (specify) | <input type="checkbox"/> | Lead | <input type="checkbox"/> |
| Joins, secures, or fastens material by: | | Calking compound | <input type="checkbox"/> |
| Nails | <input checked="" type="checkbox"/> | Sealing compound | <input type="checkbox"/> |
| Metal straps | <input checked="" type="checkbox"/> | Mortar | <input type="checkbox"/> |
| Staples | <input checked="" type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Dowels | <input checked="" type="checkbox"/> | Cuts and bends: | |
| Threaded joints | <input checked="" type="checkbox"/> | Pipe into specified size and shape | <input type="checkbox"/> |
| Calked joints | <input checked="" type="checkbox"/> | Lathing to fit openings, corners, and projections | <input type="checkbox"/> |
| Rivets | <input type="checkbox"/> | Thread pipe | <input type="checkbox"/> |
| Soldered joints | <input type="checkbox"/> | Digs foundation trenches | <input type="checkbox"/> |
| Brazing | <input type="checkbox"/> | Pours concrete foundations | <input type="checkbox"/> |
| Welding | <input checked="" type="checkbox"/> | Mounts hanger and brackets | <input checked="" type="checkbox"/> |
| Wire | <input checked="" type="checkbox"/> | Replace defective piping | <input type="checkbox"/> |
| Hangers | <input checked="" type="checkbox"/> | Brushes, sprays, or rolls paint on surfaces | <input type="checkbox"/> |
| Brackets | <input checked="" type="checkbox"/> | Cleans equipment and tools | <input type="checkbox"/> |
| Screws | <input checked="" type="checkbox"/> | Matches design and pastes paper on wall | <input type="checkbox"/> |
| Bolts | <input checked="" type="checkbox"/> | Polishes stone or marble | <input type="checkbox"/> |
| Anchor bolts | <input checked="" type="checkbox"/> | Positions glass in window sashes | <input type="checkbox"/> |
| Cement | <input type="checkbox"/> | Assembles glass doors and windows in metal frames | <input type="checkbox"/> |
| Adhesive | <input type="checkbox"/> | Smooths wallpaper on wall | <input type="checkbox"/> |
| Mastic | <input type="checkbox"/> | Inspects piping system for defects | <input type="checkbox"/> |
| Glazier points | <input type="checkbox"/> | Tests piping systems for leaks | <input type="checkbox"/> |
| Mortar | <input type="checkbox"/> | Paints and insulates pipes and fittings | <input type="checkbox"/> |
| Pins | <input checked="" type="checkbox"/> | Molds concrete expansion joints | <input type="checkbox"/> |
| Glue | <input checked="" type="checkbox"/> | Repairs defects in material | <input type="checkbox"/> |
| Clips | <input checked="" type="checkbox"/> | Presses brick or tile into mortar | <input type="checkbox"/> |
| Tie rods | <input type="checkbox"/> | | |

WHAT THE WORKER DOES—Continued

- | | | | |
|--|--------------------------|---|-------------------------------------|
| Nails or cements waterproof materials on roof | <input type="checkbox"/> | Guides nozzle of caulking gun along crevices in structure | <input type="checkbox"/> |
| Digs postholes and sets posts | <input type="checkbox"/> | Presses lever to discharge compound into crevice | <input type="checkbox"/> |
| Stretches wire and attaches it onto posts | <input type="checkbox"/> | Carries materials to craftsmen | <input type="checkbox"/> |
| Replaces leaky faucet washers | <input type="checkbox"/> | Stacks materials adjacent to worker | <input type="checkbox"/> |
| Opens clogged drains | <input type="checkbox"/> | Cleans finished structures | <input type="checkbox"/> |
| Attaches molding around windows, doors, and other openings | <input type="checkbox"/> | Signals operating personnel actions to be taken | <input checked="" type="checkbox"/> |
| Directs workers to mix plaster or other materials | <input type="checkbox"/> | Attaches slings onto material for hoisting operations | <input checked="" type="checkbox"/> |
| Wires lathing strips on furring | <input type="checkbox"/> | Guides materials into position | <input type="checkbox"/> |
| Wires lathing channels onto overhead structural framework | <input type="checkbox"/> | Positions beams for supporting structure | <input checked="" type="checkbox"/> |
| Presses sealing tape over compound and joints in drywall | <input type="checkbox"/> | Jacks house up and places dollies under beams | <input type="checkbox"/> |
| Fills hopper of mixing machine with materials | <input type="checkbox"/> | Attaches towing bar onto dollies | <input type="checkbox"/> |
| Turns valves to regulate pumps and air compressor | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |

COMMUNICATION RESPONSIBILITIES

Record an "X" to indicate communication responsibilities.

- | | | | |
|-----------------------------------|-------------------------------------|-----------------------|-------------------------------------|
| Building Contractor | <input checked="" type="checkbox"/> | Workers | <input checked="" type="checkbox"/> |
| Trade Contractor | <input type="checkbox"/> | Helpers | <input checked="" type="checkbox"/> |
| Construction Superintendent | <input checked="" type="checkbox"/> | Apprentices | <input checked="" type="checkbox"/> |
| Supervisors | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Supervisors of Other Trades | <input type="checkbox"/> | | |

EDUCATION AND TRAINING

Record an "X" to indicate education or training required.

- | | | | |
|--------------------------|--------------------------|--|-------------------------------------|
| Elementary | <input type="checkbox"/> | Technical Training | <input type="checkbox"/> |
| Junior High School | <input type="checkbox"/> | On-the-job Training | <input type="checkbox"/> |
| High School | <input type="checkbox"/> | Apprenticeship Training (see apprentice listing) | <input checked="" type="checkbox"/> |
| Junior College | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Vocational School | <input type="checkbox"/> | | |

BUILDING TRADES AND CONSTRUCTION APPRENTICESHIPS

Record an "X" to indicate type of apprenticeship training.

- | | | | |
|--------------------------------------|-------------------------------------|-----------------------------|--------------------------|
| Asbestos and Insulation Worker | <input type="checkbox"/> | Lather | <input type="checkbox"/> |
| Bricklayer | <input type="checkbox"/> | Marble Mason | <input type="checkbox"/> |
| Carpenter | <input checked="" type="checkbox"/> | Painter and Decorator | <input type="checkbox"/> |
| Cement Mason | <input type="checkbox"/> | Paperhanger | <input type="checkbox"/> |
| Elevator Constructor | <input type="checkbox"/> | Pipefitter | <input type="checkbox"/> |
| Floor Layer | <input type="checkbox"/> | Plasterer | <input type="checkbox"/> |
| Glazier | <input type="checkbox"/> | Plumber | <input type="checkbox"/> |
| Iron Worker: | | Roofer | <input type="checkbox"/> |
| Ornamental Iron Worker | <input type="checkbox"/> | Sprinkler Fitter | <input type="checkbox"/> |
| Reinforcing Worker | <input type="checkbox"/> | Steamfitter | <input type="checkbox"/> |
| Structural Steel Worker | <input type="checkbox"/> | Stone Mason | <input type="checkbox"/> |

BUILDING TRADES AND CONSTRUCTION APPRENTICESHIPS—Continued

- | | | | |
|---------------------------------------|--------------------------|---------------------------------|--------------------------|
| Terrazzo Worker | <input type="checkbox"/> | Pile Driver | <input type="checkbox"/> |
| Tile Setter | <input type="checkbox"/> | Hoisting and Portable Equipment | |
| Operating Engineer: | | Operator | <input type="checkbox"/> |
| Construction Equipment Operator | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| Dredge Operator | <input type="checkbox"/> | | |

SUBJECT AND COURSES

Record an "X" to indicate subjects or courses that develop skills for the occupation.

Trade Related Subjects and Courses:

- Applied Science
- Applied Chemistry
- Applied Physics
- Architectural Drawing
- Blueprint Reading
- Building Regulations and Codes
- Electrical Theory
- Electronic Theory
- Interpretation of Drawings
- Estimating
- Foremanship and Supervision
- Human Behavior
- Inspection
- Practical Geometry
- Practical Trigonometry
- Safety Practices
- Safety Regulations
- Sketching
- Trade Mathematics
- Trade Science
- Welding
- Other (specify)

Trade Theory:

- Asbestos and Insulation Worker
- Insulating Materials
- Pipe Coverings
- Insulating:
- Steam Piping
- Ventilation Systems
- Machinery and Equipment
- Refrigeration Equipment
- Refrigeration Piping
- Air Conditioning Piping
- Methods of Application
- Tools and Their Uses
- Insulation Covering Materials
- Methods of Covering Insulation
- Other (specify)

Bricklayer:

- History of Masonry
- Masonry Materials
- Application of Masonry Materials

- Tool Terminology
- Tool Description, Purposes, and Uses
- Functional Principles of Masonry
- Tools
- Types of Bonding Materials
- Types and Uses of Reinforcing Materials
- Safe Use of Tools, Scaffolding, and
- Materials
- Mixing and Application of Mortars
- Laying of:
- Cement Blocks
- Common Brick
- Architectural Terra Cotta
- Facing Brick
- Refractory Brick
- Construction of:
- Walls
- Corners
- Angles and Courses
- Pilasters
- Piers
- Footings
- Columns
- Chimneys
- Smokestacks
- Fireplaces
- Hearths
- Reinforced Masonry
- Cleaning and Preparing Surfaces
- Pointing
- Calking and Grouting
- Other (specify)

Carpenter:

- History and Orientation
- Introduction to Handtools and
- Materials
- Handtool Skills
- Principles of Machine Tools
- Machine Tools Operation
- Forms, Foundations, and Concrete
- Principles of Construction
- Framing Construction
- Principles of Exterior Finish
- Application of Interior Finish

SUBJECTS AND COURSES—Continued

Introduction to Stairbuilding	<input checked="" type="checkbox"/>	Methods of Cutting and Installing:	
Layout and Construction of Stairs	<input checked="" type="checkbox"/>	Glass	<input type="checkbox"/>
Heavy Construction Principles	<input checked="" type="checkbox"/>	Mirrors	<input type="checkbox"/>
Form Detailing and Construction	<input checked="" type="checkbox"/>	Glass Doors and Partitions	<input type="checkbox"/>
Hardware and Installation	<input checked="" type="checkbox"/>	Manufacture and Preparation of:	
Door Hanging	<input checked="" type="checkbox"/>	Insulated Glass Units	<input type="checkbox"/>
Cabinet Work	<input checked="" type="checkbox"/>	Corrugated Glass Units	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Types and Application of Structural	
		Glass	<input type="checkbox"/>
		Other (specify)	<input type="checkbox"/>
Cement Mason:		Iron Worker:	
Masonry Materials	<input type="checkbox"/>	History and Scope of Ironworking Trade	<input type="checkbox"/>
Trade Tools and Equipment	<input type="checkbox"/>	Rope Knots and Hitches	<input type="checkbox"/>
Forms and Form Construction	<input type="checkbox"/>	Care and Handling of Rope	<input type="checkbox"/>
Working Characteristics of Materials	<input type="checkbox"/>	Handtools	<input type="checkbox"/>
Concrete Working Techniques	<input type="checkbox"/>	Cable Working Loads	<input type="checkbox"/>
Concrete Finishing Techniques	<input type="checkbox"/>	Hardware	<input type="checkbox"/>
Expansion Joints	<input type="checkbox"/>	Cranes, Derricks, and Poles	<input type="checkbox"/>
Concrete Handwork	<input type="checkbox"/>	Principles of Ironworking Trade	<input type="checkbox"/>
Concrete Machine Work	<input type="checkbox"/>	Structural Principles:	
Other (specify)	<input type="checkbox"/>	Ornamental Principles	<input type="checkbox"/>
		Reinforced Iron Principles	<input type="checkbox"/>
Elevator Constructor:		Materials of Trade:	
Materials and Equipment Controls	<input type="checkbox"/>	Rolled Steel Shapes	<input type="checkbox"/>
Installing:		Rolled Sheet Steel	<input type="checkbox"/>
Guide Rails	<input type="checkbox"/>	Corrugated Materials	<input type="checkbox"/>
Hoisting Equipment and Motors	<input type="checkbox"/>	Fabricated Steel Shapes	<input type="checkbox"/>
Counterweights	<input type="checkbox"/>	Ornamental Materials	<input type="checkbox"/>
Control Systems	<input type="checkbox"/>	Fasteners	<input type="checkbox"/>
Signaling Equipment	<input type="checkbox"/>	Classes of Leverages	<input type="checkbox"/>
Safety Devices	<input type="checkbox"/>	Gears and Ratios	<input type="checkbox"/>
Elevator Testing and Adjusting	<input type="checkbox"/>	Weights of Materials	<input type="checkbox"/>
Elevator Maintenance and Repair	<input type="checkbox"/>	Care and Use of Transit	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Scaffolding and Ladders	<input type="checkbox"/>
		Structural Steel Erection	<input type="checkbox"/>
Floor Layer:		Machinery, Moving and Rigging:	
Materials of Trade	<input type="checkbox"/>	Reeving of Rope	<input type="checkbox"/>
Types of Adhesives	<input type="checkbox"/>	Use and Care of Wire Rope	<input type="checkbox"/>
Surface Preparation	<input type="checkbox"/>	Splicing of Fiber and Wire Rope	<input type="checkbox"/>
Work Layout	<input type="checkbox"/>	Rigging Hardware and Attachments	<input type="checkbox"/>
Material Cutting, Fitting, Molding	<input type="checkbox"/>	Hoisting Equipment	<input type="checkbox"/>
Trade Tools and Equipment	<input type="checkbox"/>	Guy Lines and Anchorages	<input type="checkbox"/>
Tile Laying Techniques	<input type="checkbox"/>	Jacks, Rolls, and Skids	<input type="checkbox"/>
Linoleum Laying Techniques	<input type="checkbox"/>	Structural Steel Erection:	
Other (specify)	<input type="checkbox"/>	Fabrication Procedures	<input type="checkbox"/>
		Material Identification	<input type="checkbox"/>
Glazier:		Material Handling and Transporting	<input type="checkbox"/>
Trade History and Orientation	<input type="checkbox"/>	Connecting, Hooking-on, Taglining	<input type="checkbox"/>
Trade Tools and Equipment	<input type="checkbox"/>	Plumbing and Leveling	<input type="checkbox"/>
Materials	<input type="checkbox"/>	Mechanical Fasteners	<input type="checkbox"/>
Glass Specifications	<input type="checkbox"/>	Connections of Structural Steel	<input type="checkbox"/>
Types and Qualities of:		Structural Rigging	<input type="checkbox"/>
Glass	<input type="checkbox"/>	Parts and Erection Methods of:	
Metal	<input type="checkbox"/>	Towers	<input type="checkbox"/>
Special Fastening Devices	<input type="checkbox"/>		
Job Site Layout Methods	<input type="checkbox"/>		

SUBJECTS AND COURSES—Continued

Buildings	<input type="checkbox"/>	Materials of Trade and Uses	<input type="checkbox"/>
Bridges	<input type="checkbox"/>	Basic Uses of Trade Tools	<input type="checkbox"/>
Structural Safety	<input type="checkbox"/>	Laws Governing Worker	<input type="checkbox"/>
Signalling Methods	<input type="checkbox"/>	Preparing Colors and Materials	<input type="checkbox"/>
Reinforcing Ironwork:		Methods of Applying Materials	<input type="checkbox"/>
Identification of Materials	<input type="checkbox"/>	Hardwood and Hardwood	
Hand and Bending Tools	<input type="checkbox"/>	Finishes	<input type="checkbox"/>
Fabrication	<input type="checkbox"/>	Architectural Decorating	
Accessories	<input type="checkbox"/>	Practices and Finishes	<input type="checkbox"/>
Unloading and Sorting of		Basic Graining and Marbling	<input type="checkbox"/>
Materials:		Mixing and Matching of colors	<input type="checkbox"/>
Types of Material Ties	<input type="checkbox"/>	Principles of Color Harmony	<input type="checkbox"/>
Footings	<input type="checkbox"/>	Color Chemistry	<input type="checkbox"/>
Placing	<input type="checkbox"/>	Psychology of Color	<input type="checkbox"/>
Joint Preparation	<input type="checkbox"/>	Care of Tools and Equipment	<input type="checkbox"/>
Welding Procedures	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Ornamental Ironwork:		Paperhanger:	
Handtools	<input type="checkbox"/>	Materials of Trade	<input type="checkbox"/>
Drills and Tap	<input type="checkbox"/>	Tools of Trade	<input type="checkbox"/>
Doors and Elevator Fronts	<input type="checkbox"/>	Selection and Use of Tools	<input type="checkbox"/>
Curtain Wall Construction	<input type="checkbox"/>	Preparation of Surfaces	<input type="checkbox"/>
Sashes	<input type="checkbox"/>	Application of:	
Stairways	<input type="checkbox"/>	Wallpaper	<input type="checkbox"/>
Handrails	<input type="checkbox"/>	Canvas	<input type="checkbox"/>
Layout	<input type="checkbox"/>	Muslin	<input type="checkbox"/>
Fasteners	<input type="checkbox"/>	Fabrics	<input type="checkbox"/>
Sheeting and Fencing:		Systems of Color Notation	<input type="checkbox"/>
Sheeting Materials	<input type="checkbox"/>	Principles of Color Harmony	<input type="checkbox"/>
Sheeting Erection Methods	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Service Station Materials	<input type="checkbox"/>	Plasterer:	
Service Station Erection Methods	<input type="checkbox"/>	History and Development of Trade	<input type="checkbox"/>
Fencing Materials	<input type="checkbox"/>	Chemistry of Plastering Materials	<input type="checkbox"/>
Fencing Erection Methods	<input type="checkbox"/>	Proportions of Materials	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Lath and Masonry Bases	<input type="checkbox"/>
Lather:		Plastering Materials	<input type="checkbox"/>
Lathing Materials	<input type="checkbox"/>	Job Conditions affecting Plastering	<input type="checkbox"/>
Trade Tools and Equipment	<input type="checkbox"/>	Plaster Cracks and Causes	<input type="checkbox"/>
Lathing Methods and Techniques	<input type="checkbox"/>	Dotting, Pressed Screeds, and	
Specifications for Lathing	<input type="checkbox"/>	Water Leveling	<input type="checkbox"/>
Lathing and Metal Layout	<input type="checkbox"/>	Job Layout Problems	<input type="checkbox"/>
Structural Components	<input type="checkbox"/>	Acoustical Plastering	<input type="checkbox"/>
Lathing Accessories	<input type="checkbox"/>	Effect of Weather on Plastering	<input type="checkbox"/>
Installation of:		Effect of Poor Construction and	
Lathing	<input type="checkbox"/>	Application	<input type="checkbox"/>
Lathing Accessories	<input type="checkbox"/>	Mitering Breaks and Returns	<input type="checkbox"/>
Lathing:		Geometrical Layout Problems	<input type="checkbox"/>
Partitions and Walls	<input type="checkbox"/>	Molding and Casting	<input type="checkbox"/>
Ceilings	<input type="checkbox"/>	Application of Materials	<input type="checkbox"/>
Exterior Surfaces	<input type="checkbox"/>	Finishing Surfaces	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Painter and Decorator:		Pipe and Steam Fitter:	
History and Background of Trade	<input type="checkbox"/>	History and Development of Trade	<input type="checkbox"/>
Health and Safety Measures	<input type="checkbox"/>		

SUBJECTS AND COURSES—Continued

Science of Heating and Refrigeration	<input type="checkbox"/>	Procedures of Waterproofing and	
Dimension Standards	<input type="checkbox"/>	Damproofing	<input type="checkbox"/>
Characteristics and Use of Piping	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Mathematical Measurements	<input type="checkbox"/>		
Steam Power	<input type="checkbox"/>	Sprinkler Fitter:	
Process Piping, Theory and installation	<input type="checkbox"/>	History of Trade	<input type="checkbox"/>
Principles of Heating Systems	<input type="checkbox"/>	Classes of Systems	<input type="checkbox"/>
Operation of Heating Systems	<input type="checkbox"/>	Elements of Design	<input type="checkbox"/>
Standards for Heating Equipment	<input type="checkbox"/>	Underground Piping	<input type="checkbox"/>
Low Pressure Heating Systems	<input type="checkbox"/>	Sprinkler Heads	<input type="checkbox"/>
Air Conditioning	<input type="checkbox"/>	Valves	<input type="checkbox"/>
Plumbing Fixtures, Installation.		Dry System	<input type="checkbox"/>
Applications, Testing, Servicing	<input type="checkbox"/>	Mechanical Alarms	<input type="checkbox"/>
Layout and Installation of Air		Electric Alarms	<input type="checkbox"/>
Conditioning Piping System	<input type="checkbox"/>	Fire Department Connection Alarms	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Supervisory Alarms	<input type="checkbox"/>
Plumber:		Special Sprinkler Systems	<input type="checkbox"/>
Plumbing Materials	<input type="checkbox"/>	Thermostatically Controlled Systems	<input type="checkbox"/>
Trade Tools and Uses	<input type="checkbox"/>	Details of Systems Installation and Design	<input type="checkbox"/>
Principles and Practices of Water		Rigging and Scaffolding	<input type="checkbox"/>
Supply and Distribution	<input type="checkbox"/>	Elements of Costs	<input type="checkbox"/>
Formulas	<input type="checkbox"/>	Job Planning	<input type="checkbox"/>
Charts and Conversion Tables	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Coefficients and Factors	<input type="checkbox"/>		
Pipe Size Calculations	<input type="checkbox"/>	Stone Mason - Marble Mason:	
Structural Standards of Fixture Design	<input type="checkbox"/>	History of Masonry Trade	<input type="checkbox"/>
Fixtures and Special Applications	<input type="checkbox"/>	Application of Masonry Methods	<input type="checkbox"/>
Layout for Plumbing and Pipefitting	<input type="checkbox"/>	Tool Terminology	<input type="checkbox"/>
Composition, Manufacture, and General		Tool Descriptions, Purposes, Uses	<input type="checkbox"/>
Specifications for Pipe and Fittings	<input type="checkbox"/>	Functional Principles of Masonry Tools	<input type="checkbox"/>
Bacteriological Considerations	<input type="checkbox"/>	Masonry Materials	<input type="checkbox"/>
Backflow Conditions and Prevention	<input type="checkbox"/>	Types of Bonding Materials	<input type="checkbox"/>
System Design for Prevention of Water		Types and Uses of Reinforcing and	
Pollution	<input type="checkbox"/>	Fastening Materials	<input type="checkbox"/>
Conventional and Practical Layout		Mixing and Application of Bonding	
Methods	<input type="checkbox"/>	Materials	<input type="checkbox"/>
Piping Layout	<input type="checkbox"/>	Layout of Work	<input type="checkbox"/>
Layout Methods	<input type="checkbox"/>	Fitting and Setting of Material	
Fabrication and Erection of Piping	<input type="checkbox"/>	on Walls, Floors, Stairs, and	
Installation and Testing of Plumbing		Arches	<input type="checkbox"/>
Fixtures and Appliances	<input type="checkbox"/>	Cleaning of Materials	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Pointing and Grouting	<input type="checkbox"/>
		Preparation of Working Surfaces	<input type="checkbox"/>
		Other (specify)	<input type="checkbox"/>
Roofer:		Tile Setter:	
Materials of Trade	<input type="checkbox"/>	History of Tile, Mortar, and Materials	<input type="checkbox"/>
Use and Care of Tools and Equipment	<input type="checkbox"/>	Tools of Trade and Uses	<input type="checkbox"/>
Preparation of Work Surfaces	<input type="checkbox"/>	Surface Preparation	<input type="checkbox"/>
Installation Methods for Slate,		Work Layout	<input type="checkbox"/>
Tile, Terra Cotta, Paper	<input type="checkbox"/>	Use of Hawk and Trowel	<input type="checkbox"/>
Application Methods for Tar, Pitch, Asphalt,		Strip Setting	<input type="checkbox"/>
Gravel, and Paper	<input type="checkbox"/>	Open Joint and Cove Installation of	
Principles of Waterproofing and		Glazed Mosaic, Ceramic, Quarry,	
Damproofing	<input type="checkbox"/>	and Cement Tile	<input type="checkbox"/>

SUBJECTS AND COURSES—Continued

Installing Tile on:		Slopes, Grades, and Stakes	<input type="checkbox"/>
Floors	<input type="checkbox"/>	Types of Soil and Effects on Earthwork	<input type="checkbox"/>
Walls	<input type="checkbox"/>	Materials and Their Applications:	
Drainboards	<input type="checkbox"/>	Aggregates and Their Uses	<input type="checkbox"/>
Ceilings	<input type="checkbox"/>	Concrete	<input type="checkbox"/>
Jams	<input type="checkbox"/>	Asphalt	<input type="checkbox"/>
Curbs	<input type="checkbox"/>	Application of Asphalt Pavement	<input type="checkbox"/>
Gutters	<input type="checkbox"/>	Application of Concrete Pavement	<input type="checkbox"/>
Columns	<input type="checkbox"/>	Shovel and Crane Type Equipment:	
Stairs	<input type="checkbox"/>	Shovel	<input type="checkbox"/>
Domes	<input type="checkbox"/>	Cranes	<input type="checkbox"/>
Arches	<input type="checkbox"/>	Clamshell	<input type="checkbox"/>
Panels	<input type="checkbox"/>	Dragline	<input type="checkbox"/>
Fireplaces	<input type="checkbox"/>	Backhoe	<input type="checkbox"/>
Tile Classifications	<input type="checkbox"/>	Gradeall	<input type="checkbox"/>
Glass Mosaics	<input type="checkbox"/>	Mucking Machine	<input type="checkbox"/>
New Materials	<input type="checkbox"/>	Excavator	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Pile Driver	<input type="checkbox"/>
Operating Engineer:		Material Hoisting and Handling:	
Historical Background	<input type="checkbox"/>	Equipment	<input type="checkbox"/>
Safety and First Aid	<input type="checkbox"/>	Cranes and Derricks	<input type="checkbox"/>
Use of Tools:		Belt Type Conveyors	<input type="checkbox"/>
Handtools and Gages	<input type="checkbox"/>	Tractors:	
Power Tools	<input type="checkbox"/>	Crawler Type Bulldozers and Rippers	<input type="checkbox"/>
Shop Tools and Equipment	<input type="checkbox"/>	Wheel Type Bulldozers	<input type="checkbox"/>
Types of Instruments:		Graders:	
Leveling Instruments	<input type="checkbox"/>	Motorized	<input type="checkbox"/>
Measuring Instruments	<input type="checkbox"/>	Towed	<input type="checkbox"/>
Uses of Instruments	<input type="checkbox"/>	Scrapers:	
Vehicle Code	<input type="checkbox"/>	Self Powered Type Scrapers	<input type="checkbox"/>
Rigging:		Towed	<input type="checkbox"/>
Cable and Wire Rope	<input type="checkbox"/>	Tandem	<input type="checkbox"/>
Clamps and Fittings	<input type="checkbox"/>	Self Loading	<input type="checkbox"/>
Slings and Spreaders	<input type="checkbox"/>	Land Levelers	<input type="checkbox"/>
Blocks, Pulleys, and Swivels	<input type="checkbox"/>	Loaders:	
Weight and Materials	<input type="checkbox"/>	Front End	<input type="checkbox"/>
Proper Lifting Procedures	<input type="checkbox"/>	Side	<input type="checkbox"/>
Introduction to Internal Combustion		Rear	<input type="checkbox"/>
Engines	<input type="checkbox"/>	Overhead	<input type="checkbox"/>
Lubrication	<input type="checkbox"/>	Compaction Equipment:	
Introduction to Basic Electricity	<input type="checkbox"/>	Tandem, Three Wheel, Grid and	
Introduction to Basic Hydraulics	<input type="checkbox"/>	Offset Rollers	<input type="checkbox"/>
Converters	<input type="checkbox"/>	Sheepfoot, Pneumatic and Wobbly	
Fluid Drives	<input type="checkbox"/>	Wheel Rollers	<input type="checkbox"/>
Gears and Reductions	<input type="checkbox"/>	Vibrating Compactors and Tampers	<input type="checkbox"/>
Transmissions	<input type="checkbox"/>	Work Cycles:	
Introduction to Basic Pneumatics	<input type="checkbox"/>	Advanced Concepts in Measurement	<input type="checkbox"/>
Differentials and Rear Ends	<input type="checkbox"/>	Understanding Plans and	
U-Joints and Drives	<input type="checkbox"/>	Specifications in Earthwork	<input type="checkbox"/>
Orientation to Heavy Equipment	<input type="checkbox"/>	Job Methods:	
Construction Equipment Operators		Haul Engineering	<input type="checkbox"/>
Grade Plans and Earthwork:		Ditches, Ditch Gradients, Earthwork	
Earth Moving	<input type="checkbox"/>	and Equipment Selection	<input type="checkbox"/>
Importance of Good Safety Practices	<input type="checkbox"/>	Bids, Contracts, and Performances	<input type="checkbox"/>
Measurements Used in Earthwork	<input type="checkbox"/>	Dredge Operator:	
		Introduction to Dredging	<input type="checkbox"/>

SUBJECTS AND COURSES—Continued

Types of Dredges	<input type="checkbox"/>	Conveyors:	
Dredge Plant Components	<input type="checkbox"/>	Types of Conveyors	<input type="checkbox"/>
Dredge Operation	<input type="checkbox"/>	Construction of Conveyors	<input type="checkbox"/>
Seamanship:		Conveyor Parts	<input type="checkbox"/>
Anchor	<input type="checkbox"/>	Adjustment	<input type="checkbox"/>
Small Boat Handling	<input type="checkbox"/>	Alinement	<input type="checkbox"/>
Compass	<input type="checkbox"/>	Holdbacks	<input type="checkbox"/>
Weather	<input type="checkbox"/>	Hoppers and Loading	<input type="checkbox"/>
Marinspike Seamanship	<input type="checkbox"/>	Spillage	<input type="checkbox"/>
Plant Equipment Operator	<input type="checkbox"/>	Troughs and Skirts	<input type="checkbox"/>
Rock, Sand and Gravel Operator:		Trippers	<input type="checkbox"/>
Crushers	<input type="checkbox"/>	Safety Devices	<input type="checkbox"/>
Types of Crushers	<input type="checkbox"/>	Inclines	<input type="checkbox"/>
Batch Plants	<input type="checkbox"/>	Capacities	<input type="checkbox"/>
Processing Plants	<input type="checkbox"/>	Shiftable Frames	<input type="checkbox"/>
Concrete:		Rose Belt	<input type="checkbox"/>
Grizzlies and Screens	<input type="checkbox"/>	Extendible Conveyor	<input type="checkbox"/>
Feeders	<input type="checkbox"/>	Rough Loader	<input type="checkbox"/>
Aggregate Washing and Separating		Stacker	<input type="checkbox"/>
Equipment	<input type="checkbox"/>	Controls:	
Kinds of Batching Equipment	<input type="checkbox"/>	Type of Controls	<input type="checkbox"/>
Batch Operation	<input type="checkbox"/>	Operation of Controls	<input type="checkbox"/>
Trolley Batcher	<input type="checkbox"/>	Specialized Tools:	
Single Material Batcher	<input type="checkbox"/>	Special Tools Needed on Batch Plants	<input type="checkbox"/>
Aggregate Measurement	<input type="checkbox"/>	Tools and Equipment Needed for	
Weigh Batcher	<input type="checkbox"/>	Service and Lubrication	<input type="checkbox"/>
Cement Weigh Hoppers	<input type="checkbox"/>	Job Methods, Planning and Layout:	
Multiple Batcher	<input type="checkbox"/>	Selection of Equipment for Job	<input type="checkbox"/>
Batching Systems	<input type="checkbox"/>	Selection of Materials Needed	<input type="checkbox"/>
Fixed Plants	<input type="checkbox"/>	Troubleshooting	<input type="checkbox"/>
Mass Concrete Plant	<input type="checkbox"/>	Job Problems	<input type="checkbox"/>
Transit Mix Fixed Plant	<input type="checkbox"/>	Methods of Measurement	<input type="checkbox"/>
Plant Maintenance and Safety	<input type="checkbox"/>	Heavy Duty Repairman:	
Asphalt:		Welding	<input type="checkbox"/>
Central Mixing Plants	<input type="checkbox"/>	Principles of Welding and Cutting	<input type="checkbox"/>
Cold Aggregate Feeder or Hopper	<input type="checkbox"/>	Oxyacetylene	<input type="checkbox"/>
Cold Aggregate Elevator	<input type="checkbox"/>	Electric	<input type="checkbox"/>
Dryer Operation	<input type="checkbox"/>	Soldering	<input type="checkbox"/>
Dust Operation	<input type="checkbox"/>	Preventive Maintenance	<input type="checkbox"/>
Hot Elevator	<input type="checkbox"/>	Safety	<input type="checkbox"/>
Graduation Control Unit	<input type="checkbox"/>	Internal Combustion Engines:	
Bituminous Mixer	<input type="checkbox"/>	Engine Types	<input type="checkbox"/>
Fines Feeder	<input type="checkbox"/>	Stationary Parts	<input type="checkbox"/>
Boilers	<input type="checkbox"/>	Major Moving Parts	<input type="checkbox"/>
Belt Conveyor	<input type="checkbox"/>	Typical Diesel Engines	<input type="checkbox"/>
Bucket Loader	<input type="checkbox"/>	High Compression Gas Engines	<input type="checkbox"/>
Bitumen Heater	<input type="checkbox"/>	Auxiliary System	<input type="checkbox"/>
Asphalt Kettle	<input type="checkbox"/>	Crawler Track and Wheel Systems:	
Asphalt Distributor	<input type="checkbox"/>	Frames	<input type="checkbox"/>
Asphalt Tank	<input type="checkbox"/>	Springs	<input type="checkbox"/>
Trailer Tank	<input type="checkbox"/>	Undercarriage:	
Liquid Storage Tank	<input type="checkbox"/>	Track	<input type="checkbox"/>
Water Tank	<input type="checkbox"/>	Rollers	<input type="checkbox"/>
Small Continuous Mix Plant	<input type="checkbox"/>	Idlers	<input type="checkbox"/>

SUBJECTS AND COURSES—Continued

- Sprockets
- Truck Frames
- Rebuilding Techniques
- Preventive Maintenance
- Safety
- Bases and Carriers:
 - Stationary
 - Mobile
- Tires and Care:
 - Types of Tires
 - Air Pressure
 - Wheel Failure
 - Tire Repair
- Brake Systems:
 - Mechanical
 - Hydraulic
 - Electrical
 - Vacuum
 - Brake Booster
 - Repairs
- Clutches and Frictions:
 - Description and Operation
 - Inspection and Maintenance
 - Minor Adjustments
 - Replace Clutch Springs and Release Bearings
 - Clutch Troubleshooting
- Steering Systems:
 - Conventional
 - Hydraulic Ram
 - Electrical
 - Clutch Brake
 - Tracks
 - Wheels
 - Legs
- Electricity:
 - Coils
 - Distributors
 - Starter Motors and Controls
 - Alternators, Regulators, Generators and Rectifiers
 - Heavy Duty Lightning Systems
 - Ignition Systems
 - Storage Batteries
 - Tune-Up Procedures
 - Accessories
- Hydraulics:
 - Introduction
 - Liquid Flow
 - Pipe Fittings and Seals
 - Valves and Pumps
 - Hydraulic Systems
- Pneumatics:
 - Basic Pneumatics
 - Compressors
- Convertors:
 - Uses
 - Types
 - Charging System
 - Lockup
 - Overrunning Clutch
 - Heat Exchangers
 - Types of Fluids
 - Filter System
- Fluid Drive:
 - Types of Fluid Drive
 - Service and Maintenance
- Gear and Reductions
 - Multiple Speed
 - Multiple Drive
- Transmissions:
 - Function
 - Gearing
 - Gear Material
 - Types
 - Disassembly
 - Cleaning and Inspection
 - Reassembly
 - Adjustment
- Final Drives:
 - Single Reduction
 - Planetary
- Differentials and Rear Ends:
 - Single Reduction Axles
 - Two-speed Axles
 - Tandem Drive Axles
 - Axle Shifting Systems
- U-Joints and Drive Lines:
 - Types
 - Inspection
- Manual and Parts Book
 - Use and Familiarization
- Engine Principles and Theory
- Fuel Systems and Carburetion
- Air Intake and Exhaust Systems
- Cooling and Lubrication Systems
- Electricity:
 - Theory of Electricity
 - Parallel Circuits
 - Series Circuits
 - Ohms Law
 - Fundamentals of Electricity
 - Circuits, Symbols, and Conductors
 - Relays and Switches
 - Magnetism and Induction
 - Electrical Measurement
 - AC and DC Generation
 - Motors
 - DC Circuits

UNION AFFILIATION—Continued

- | | | | |
|---|--------------------------|---------------------------------|--------------------------|
| Primary and Secondary Batteries | <input type="checkbox"/> | Symbols and Circuits | <input type="checkbox"/> |
| AC Current | <input type="checkbox"/> | Pumps and Motors | <input type="checkbox"/> |
| Direct Current Motors and Controls | <input type="checkbox"/> | Basic Valve Types | <input type="checkbox"/> |
| Single and Three Phase Circuits | <input type="checkbox"/> | Cylinder Structure | <input type="checkbox"/> |
| Transformers and Regulators | <input type="checkbox"/> | Type of Hoses | <input type="checkbox"/> |
| Polyphase Induction Motors | <input type="checkbox"/> | Seals | <input type="checkbox"/> |
| Synchronous Motors | <input type="checkbox"/> | Choosing Right Oil | <input type="checkbox"/> |
| Set Synchronous Apparatus | <input type="checkbox"/> | Purposes of Reservoirs | <input type="checkbox"/> |
| Single Phase Motors | <input type="checkbox"/> | Damaging Effect of Dirt | <input type="checkbox"/> |
| Circuit-Protective and Switching
Equipment | <input type="checkbox"/> | Accumulators | <input type="checkbox"/> |
| Electrical Instruments and
Measurement | <input type="checkbox"/> | Testing Criteria | <input type="checkbox"/> |
| Electron Tubes and Devices | <input type="checkbox"/> | Checking Operating Times | <input type="checkbox"/> |
| Types and Sizes of Wire | <input type="checkbox"/> | Primary Visual Checks | <input type="checkbox"/> |
| Wire Connections and Joints | <input type="checkbox"/> | Bypass Testing | <input type="checkbox"/> |
| Wiring of Heavy Appliances | <input type="checkbox"/> | In-Line Testing | <input type="checkbox"/> |
| Isolated and Standby Power Plants | <input type="checkbox"/> | Pneumatic Systems: | |
| Special Engines: | | Basic Systems | <input type="checkbox"/> |
| Gasoline | <input type="checkbox"/> | Compressors | <input type="checkbox"/> |
| Diesel | <input type="checkbox"/> | Portable Type | <input type="checkbox"/> |
| Steam | <input type="checkbox"/> | Construction | <input type="checkbox"/> |
| Electric | <input type="checkbox"/> | Rating | <input type="checkbox"/> |
| Hydraulic Systems: | | Pressure Control | <input type="checkbox"/> |
| Basic Types of Hydraulic Systems | <input type="checkbox"/> | Heat | <input type="checkbox"/> |
| Similarity to Air Pressure | <input type="checkbox"/> | Rotary Compressors | <input type="checkbox"/> |
| Pascals Law | <input type="checkbox"/> | Reciprocating Compressors | <input type="checkbox"/> |
| Hydraulic Properties of Oil | <input type="checkbox"/> | Operation | <input type="checkbox"/> |
| Basic Hydraulic Pump | <input type="checkbox"/> | Air Lines and Accessories | <input type="checkbox"/> |
| Advantages of Hydraulic Transmission | <input type="checkbox"/> | Air Motors | <input type="checkbox"/> |
| Hydraulic Terms | <input type="checkbox"/> | Tanks | <input type="checkbox"/> |
| | | Governors | <input type="checkbox"/> |
| | | Other (specify) | <input type="checkbox"/> |

LICENSURE OR CERTIFICATION

Record an "X" to indicate licenses or certification required.

- | | | | |
|---------------|--------------------------|-----------------------|--------------------------|
| Federal | <input type="checkbox"/> | City | <input type="checkbox"/> |
| State | <input type="checkbox"/> | Other (specify) | <input type="checkbox"/> |
| County | <input type="checkbox"/> | | |

UNION AFFILIATION

Record an "X" to indicate union affiliation.

- | | | | |
|---|--------------------------|---|--------------------------|
| International Unions: | | International Union of Operating | |
| Bricklayers, Masons, and Plasterers | | Engineers | <input type="checkbox"/> |
| International Union of America | <input type="checkbox"/> | International Union of Elevator | |
| Brotherhood of Painters, Decorators, | | Constructors | <input type="checkbox"/> |
| and Paperhangers of America | <input type="checkbox"/> | Laborers International Union of | |
| International Association of Heat and | | North America | <input type="checkbox"/> |
| Frost Insulators and Asbestos Workers | <input type="checkbox"/> | Operative Plasterers and Cement Masons | |
| International Association of Bridge, | | International Association of United | |
| Structural, and Ornamental Iron | | States and Canada | <input type="checkbox"/> |
| Workers | <input type="checkbox"/> | | |

PRODUCTS—Continued

United Association of Journeyman and Apprentices of the Plumbing and Pipefitting Industry of the United States and Canada	<input type="checkbox"/>	Iron Workers and Shopmans Local	<input type="checkbox"/>
United Brotherhood of Carpenters and Joiners of America	<input checked="" type="checkbox"/>	Laborers	<input type="checkbox"/>
United Rubber, Cork, Linoleum, and Plastic Workers Union	<input type="checkbox"/>	Laborers and Plaster Tenders	<input type="checkbox"/>
United Slate, Tile, and Composition Roofers, Damp and Waterproof Workers Association	<input type="checkbox"/>	Lathers	<input type="checkbox"/>
Wood, Wire, and Metal Lathers International Union	<input type="checkbox"/>	Lathers Nail and Wood Local	<input type="checkbox"/>
Other (specify)	<input type="checkbox"/>	Linoleum, Carpet, and Soft Tile Layers	<input type="checkbox"/>
Unions:		Marble Masons	<input type="checkbox"/>
Acoustical, Drywall, Insulation, and Scaffolding	<input type="checkbox"/>	Operating Engineers	<input type="checkbox"/>
Acoustic Drywall Workers	<input type="checkbox"/>	Operating Engineers Hoisting and Portable Local	<input type="checkbox"/>
Asbestos Workers	<input type="checkbox"/>	Ornamental Iron Workers Local	<input type="checkbox"/>
Bricklayers	<input type="checkbox"/>	Painters	<input type="checkbox"/>
Bricklayers and Masons	<input type="checkbox"/>	Painters and Decorators	<input type="checkbox"/>
Bricklayers and Stonemasons	<input type="checkbox"/>	Painters, Decorators, and Paperhangers	<input type="checkbox"/>
Bricklayers and Tile Setters	<input type="checkbox"/>	Pile Drivers	<input type="checkbox"/>
Carpenters	<input checked="" type="checkbox"/>	Pile Drivers, Bridge, Wharf, and Dock Builders Local	<input type="checkbox"/>
Carpenters and Joiners	<input checked="" type="checkbox"/>	Plasterers	<input type="checkbox"/>
Cement Masons	<input type="checkbox"/>	Plasterers and Cement Finishers	<input type="checkbox"/>
Cement Finishers and Plasterers	<input type="checkbox"/>	Plasterers and Cement Masons	<input type="checkbox"/>
Elevator Constructors	<input type="checkbox"/>	Plumbers	<input type="checkbox"/>
Floor Layers	<input type="checkbox"/>	Plumbers and Fitters	<input type="checkbox"/>
Glaziers and Glass Workers	<input type="checkbox"/>	Plumbers and Steamfitters	<input type="checkbox"/>
Gunitite Workers	<input type="checkbox"/>	Reinforced Iron Workers	<input type="checkbox"/>
Hardwood Floor Carpenters	<input type="checkbox"/>	Refrigeration, Air Conditioning, and Fitters	<input type="checkbox"/>
Hod Carriers and Laborers	<input type="checkbox"/>	Roofers	<input type="checkbox"/>
House Movers	<input type="checkbox"/>	Shinglers	<input type="checkbox"/>
Iron Workers	<input type="checkbox"/>	Shinglers and Drywall Installers	<input type="checkbox"/>
Iron Workers Ornamental and Architectural Local	<input type="checkbox"/>	Sprinkler Fitters	<input type="checkbox"/>
		Steamfitters	<input type="checkbox"/>
		Terrazzo Workers and Machine Operators	<input type="checkbox"/>
		Tile Layers	<input type="checkbox"/>
		Tile Setters	<input type="checkbox"/>
		Tile Marble, and Terrazzo Helpers	<input type="checkbox"/>
		United Mine Workers, Construction Local	<input type="checkbox"/>
		Other (specify)	<input type="checkbox"/>

PRODUCTS

Record an "X" to indicate product produced.

Construction Products:		Apartments	<input checked="" type="checkbox"/>
Abutments	<input checked="" type="checkbox"/>	Aqueducts	<input type="checkbox"/>
Airports	<input type="checkbox"/>	Asylums	<input type="checkbox"/>
Alleys	<input type="checkbox"/>	Athletic Fields	<input type="checkbox"/>
Aluminum Mills	<input type="checkbox"/>	Auditoriums	<input checked="" type="checkbox"/>
Antennas	<input type="checkbox"/>	Ball Parks	<input checked="" type="checkbox"/>

PRODUCTS—Continued

Boilers	<input type="checkbox"/>	Mine Loading and Unloading	
Bomb Shelters	<input checked="" type="checkbox"/>	Stations	<input checked="" type="checkbox"/>
Breakwaters	<input type="checkbox"/>	Missile Facilities	<input checked="" type="checkbox"/>
Bridges	<input checked="" type="checkbox"/>	Mausoleums	<input checked="" type="checkbox"/>
Canals	<input checked="" type="checkbox"/>	Motels	<input checked="" type="checkbox"/>
Canal Locks	<input checked="" type="checkbox"/>	Museums	<input checked="" type="checkbox"/>
Canal Gates	<input checked="" type="checkbox"/>	Oil Refineries	<input checked="" type="checkbox"/>
Caissons	<input checked="" type="checkbox"/>	Parks	<input checked="" type="checkbox"/>
Cemetaries	<input type="checkbox"/>	Parking Lots	<input checked="" type="checkbox"/>
Cesepools	<input type="checkbox"/>	Piers	<input checked="" type="checkbox"/>
Chemical Plants	<input type="checkbox"/>	Pilot Plants	<input checked="" type="checkbox"/>
Chimneys	<input type="checkbox"/>	Pipelines	<input type="checkbox"/>
Churches	<input checked="" type="checkbox"/>	Pumping Stations	<input checked="" type="checkbox"/>
Clean Rooms	<input checked="" type="checkbox"/>	Radio Transmitting Towers	<input checked="" type="checkbox"/>
Cofferdams	<input checked="" type="checkbox"/>	Railroad Roadbeds	<input type="checkbox"/>
Conduits	<input type="checkbox"/>	Railroad Structures	<input checked="" type="checkbox"/>
Culverts	<input checked="" type="checkbox"/>	Rapid Transit Structures	<input checked="" type="checkbox"/>
Curbs	<input type="checkbox"/>	Refineries	<input checked="" type="checkbox"/>
Dams	<input checked="" type="checkbox"/>	Reservoirs	<input checked="" type="checkbox"/>
Dikes	<input checked="" type="checkbox"/>	Roads	<input checked="" type="checkbox"/>
Drainage Canals	<input checked="" type="checkbox"/>	Rolling Mills	<input checked="" type="checkbox"/>
Elevators	<input checked="" type="checkbox"/>	Recreational Buildings	<input checked="" type="checkbox"/>
Electric Power Transmission		Residence	<input checked="" type="checkbox"/>
Towers	<input type="checkbox"/>	Single Family	<input checked="" type="checkbox"/>
Escalators	<input checked="" type="checkbox"/>	Multi-Family	<input checked="" type="checkbox"/>
Farm Buildings	<input checked="" type="checkbox"/>	Restaurants	<input checked="" type="checkbox"/>
Factories	<input checked="" type="checkbox"/>	Sewers	<input checked="" type="checkbox"/>
Fences	<input checked="" type="checkbox"/>	Sewage Plants	<input checked="" type="checkbox"/>
Financial Institutions	<input checked="" type="checkbox"/>	Shopping Centers	<input checked="" type="checkbox"/>
Fire Escape	<input checked="" type="checkbox"/>	Silos	<input checked="" type="checkbox"/>
Flood Control Projects	<input checked="" type="checkbox"/>	Stadia	<input type="checkbox"/>
Freeways	<input checked="" type="checkbox"/>	Stores	<input checked="" type="checkbox"/>
Garages	<input checked="" type="checkbox"/>	Subways	<input checked="" type="checkbox"/>
Gas Mains	<input type="checkbox"/>	Swimming Pools	<input checked="" type="checkbox"/>
Golf Courses	<input type="checkbox"/>	Television Transmitting Towers	<input checked="" type="checkbox"/>
Grain Elevators	<input checked="" type="checkbox"/>	Telephone Transmission Lines	<input checked="" type="checkbox"/>
Harbors	<input checked="" type="checkbox"/>	Transportation Terminals	<input checked="" type="checkbox"/>
High Rise Buildings	<input checked="" type="checkbox"/>	Tunnels	<input checked="" type="checkbox"/>
Highways	<input checked="" type="checkbox"/>	Viaducts	<input checked="" type="checkbox"/>
Hospitals	<input checked="" type="checkbox"/>	Waste Disposal Plants	<input checked="" type="checkbox"/>
Hotels	<input checked="" type="checkbox"/>	Waterways	<input checked="" type="checkbox"/>
Houses	<input checked="" type="checkbox"/>	Wharfs	<input checked="" type="checkbox"/>
Hydroelectric Plants	<input checked="" type="checkbox"/>	Retaining Walls	<input checked="" type="checkbox"/>
Industrial Furnaces	<input checked="" type="checkbox"/>	Sidewalks	<input checked="" type="checkbox"/>
Industrial Ovens	<input checked="" type="checkbox"/>	Storage Tanks	<input type="checkbox"/>
Industrial Plants	<input checked="" type="checkbox"/>	Structural Steel Framework	<input type="checkbox"/>
Institutional Buildings	<input checked="" type="checkbox"/>	Scaffolds	<input checked="" type="checkbox"/>
Irrigation Projects	<input type="checkbox"/>	Service Stations	<input checked="" type="checkbox"/>
Jettys	<input checked="" type="checkbox"/>	Windmills	<input checked="" type="checkbox"/>
Kilns	<input checked="" type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Laboratories	<input checked="" type="checkbox"/>		
Levees	<input checked="" type="checkbox"/>	Systems:	
Libraries	<input checked="" type="checkbox"/>	Air Conditioning	<input type="checkbox"/>
Manholes	<input checked="" type="checkbox"/>	Heating	<input type="checkbox"/>
Marinas	<input checked="" type="checkbox"/>		

PRODUCTS---Continued

- | | | | |
|-------------------|--------------------------|---------------------|--------------------------|
| Piping: | | Cooling | <input type="checkbox"/> |
| Water | <input type="checkbox"/> | Plumbing | <input type="checkbox"/> |
| Air | <input type="checkbox"/> | Refrigeration | <input type="checkbox"/> |
| Gas | <input type="checkbox"/> | Sprinkler | <input type="checkbox"/> |
| Steam | <input type="checkbox"/> | Steam | <input type="checkbox"/> |
| Acid | <input type="checkbox"/> | Ventilating | <input type="checkbox"/> |
| Circulating | <input type="checkbox"/> | | |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS

Record an "X" to indicate machines, tools, equipment, and work aids used.

- | | | | |
|---|--------------------------|---|--------------------------|
| Construction Machines
and Equipment: | | Concrete lift slab | <input type="checkbox"/> |
| Canal construction machines: | | Concrete planer | <input type="checkbox"/> |
| Concrete joint machine | <input type="checkbox"/> | Concrete spreader | <input type="checkbox"/> |
| Canal liner machine | <input type="checkbox"/> | Concrete mechanical finisher | <input type="checkbox"/> |
| Canal trimmer machine | <input type="checkbox"/> | Concrete mobile form traveler | <input type="checkbox"/> |
| Earth compacting machines: | | Concrete slip form hydraulic
equipment | <input type="checkbox"/> |
| Hydra hammer aero stamper | <input type="checkbox"/> | Pavement breaker | <input type="checkbox"/> |
| Roller compactor | <input type="checkbox"/> | Pipeline construction machines: | |
| Road pactor | <input type="checkbox"/> | Cast-in-place pipelayer | <input type="checkbox"/> |
| Form tamper | <input type="checkbox"/> | Pipemobile | <input type="checkbox"/> |
| Blob compactor | <input type="checkbox"/> | Pipe wrapper, cleaner, bender | <input type="checkbox"/> |
| Tamping machine | <input type="checkbox"/> | Tar pipelining machine | <input type="checkbox"/> |
| Earth moving equipment: | | Piledriver: | |
| Backhoe | <input type="checkbox"/> | Floating piledriver | <input type="checkbox"/> |
| Loader | <input type="checkbox"/> | Mobile piledriver | <input type="checkbox"/> |
| Power shovel: | | Tunnel construction machines: | |
| Backhoe shovel | <input type="checkbox"/> | Tunnel boring machine | <input type="checkbox"/> |
| Dragline shovel | <input type="checkbox"/> | Tunnel heading shield machine | <input type="checkbox"/> |
| Clamshell shoveler | <input type="checkbox"/> | Tunnel mucking machine | <input type="checkbox"/> |
| Highline cable equipment | <input type="checkbox"/> | Tunnel mole boring machine | <input type="checkbox"/> |
| Remote control earthmover | <input type="checkbox"/> | Mixing machines: | |
| Trencher | <input type="checkbox"/> | Concrete mixer | <input type="checkbox"/> |
| Skiploder | <input type="checkbox"/> | Concrete batch plant | <input type="checkbox"/> |
| Earth grading machines: | | Concrete dual drum mixer | <input type="checkbox"/> |
| Push-pull scraper | <input type="checkbox"/> | Concrete gun mixing machine | <input type="checkbox"/> |
| Selfloading scraper | <input type="checkbox"/> | Pumping equipment: | |
| Motor grader | <input type="checkbox"/> | Cement pump | <input type="checkbox"/> |
| Bulldozer | <input type="checkbox"/> | Concrete gun pump | <input type="checkbox"/> |
| Tractor loader | <input type="checkbox"/> | Concrete pumping machine: | |
| Auto grader | <input type="checkbox"/> | Mobile concrete pumping
machine | <input type="checkbox"/> |
| Excavating machines: | | Drilling machines: | |
| Mass excavator | <input type="checkbox"/> | Well drilling machines: | |
| Wheel excavator | <input type="checkbox"/> | Cable tool | <input type="checkbox"/> |
| Tower excavator | <input type="checkbox"/> | Rotary Tool | <input type="checkbox"/> |
| Paving machines and equipment: | | Water well drilling machines | <input type="checkbox"/> |
| Asphalt berm curber | <input type="checkbox"/> | Dredges | <input type="checkbox"/> |
| Asphalt paver | <input type="checkbox"/> | Clamshell dredges | <input type="checkbox"/> |
| Asphalt roller | <input type="checkbox"/> | Pump dredges | <input type="checkbox"/> |
| Asphalt screeder | <input type="checkbox"/> | Hoisting equipment: | |
| Asphalt spreader | <input type="checkbox"/> | Truck crane: | |
| Asphalt heater and planer | <input type="checkbox"/> | Long boom truck crane | <input type="checkbox"/> |
| Concrete berm curber | <input type="checkbox"/> | Tower crane | <input type="checkbox"/> |
| Concrete curer | <input type="checkbox"/> | | |

MACHINES, TOOLS, EQUIPMENT, AND WORK AIDS—Continued

Elevator	<input type="checkbox"/>	Brace and Bits	<input checked="" type="checkbox"/>
Cherry picker	<input type="checkbox"/>	Pipe Threaders and Dies	<input type="checkbox"/>
Chicago boom hoist	<input type="checkbox"/>	Pipe Benders	<input type="checkbox"/>
Mobile lift hoist	<input type="checkbox"/>	Roofing Knives	<input type="checkbox"/>
Stiff leg hoist	<input type="checkbox"/>	Linoleum Knives	<input type="checkbox"/>
Tugger hoist	<input type="checkbox"/>	Mops	<input type="checkbox"/>
Tools:		Crowbar	<input checked="" type="checkbox"/>
Handtools	<input checked="" type="checkbox"/>	Pointing Trowel	<input type="checkbox"/>
Drills	<input checked="" type="checkbox"/>	Stone Masons Hammer	<input type="checkbox"/>
Chisels	<input checked="" type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Files	<input checked="" type="checkbox"/>	Power Handtools:	
Knives	<input checked="" type="checkbox"/>	Rivet Guns	<input type="checkbox"/>
Rules	<input checked="" type="checkbox"/>	Power Drills	<input checked="" type="checkbox"/>
Scissors	<input checked="" type="checkbox"/>	Power Actuated Fastening	
Tape Measures	<input checked="" type="checkbox"/>	Devices	<input checked="" type="checkbox"/>
Scribers	<input checked="" type="checkbox"/>	Spray Gun	<input type="checkbox"/>
Wire Cutters	<input checked="" type="checkbox"/>	Calking Guns	<input checked="" type="checkbox"/>
Levels	<input checked="" type="checkbox"/>	Grouting Guns	<input checked="" type="checkbox"/>
Mauls	<input checked="" type="checkbox"/>	Gunite Guns	<input type="checkbox"/>
Mallets	<input checked="" type="checkbox"/>	Cement Guns	<input type="checkbox"/>
Screwdrivers	<input checked="" type="checkbox"/>	Power Saws	<input checked="" type="checkbox"/>
Brushes	<input checked="" type="checkbox"/>	Pneumatic Drills	<input checked="" type="checkbox"/>
Wrenches	<input checked="" type="checkbox"/>	Pneumatic Hammers	<input checked="" type="checkbox"/>
Clippers	<input checked="" type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Needle	<input checked="" type="checkbox"/>	Equipment:	
Square	<input checked="" type="checkbox"/>	Soldering equipment	<input type="checkbox"/>
Trowels	<input type="checkbox"/>	Brazing equipment	<input type="checkbox"/>
Sawing Palms	<input type="checkbox"/>	Welding equipment	<input checked="" type="checkbox"/>
Hammers	<input checked="" type="checkbox"/>	Tar Kettles	<input type="checkbox"/>
Saws	<input checked="" type="checkbox"/>	Lead Pots	<input type="checkbox"/>
Brick Hammers	<input type="checkbox"/>	Blow Torches	<input type="checkbox"/>
Jointers	<input checked="" type="checkbox"/>	Stud Welding Guns	<input checked="" type="checkbox"/>
Brick Cutting Chisels	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>
Planes	<input checked="" type="checkbox"/>	Work Aids:	
Straight Edge	<input checked="" type="checkbox"/>	Blueprints	<input checked="" type="checkbox"/>
Floats	<input type="checkbox"/>	Sketches	<input checked="" type="checkbox"/>
Whips	<input type="checkbox"/>	Building Plans	<input checked="" type="checkbox"/>
Darbies	<input type="checkbox"/>	Architects Drawings	<input checked="" type="checkbox"/>
Finishing Trowel	<input type="checkbox"/>	Bills of Materials	<input checked="" type="checkbox"/>
Pry Bars	<input checked="" type="checkbox"/>	Work Order Specifications	<input checked="" type="checkbox"/>
Shears	<input checked="" type="checkbox"/>	Structural Specifications	<input checked="" type="checkbox"/>
Serrated Trowels	<input type="checkbox"/>	Construction Plans	<input checked="" type="checkbox"/>
Floor Rollers	<input checked="" type="checkbox"/>	Contract Specifications	<input checked="" type="checkbox"/>
Putty Knives	<input checked="" type="checkbox"/>	Compasses	<input checked="" type="checkbox"/>
Hacksaws	<input checked="" type="checkbox"/>	Chalk	<input checked="" type="checkbox"/>
Bolt Cutters	<input checked="" type="checkbox"/>	Plumb bob	<input checked="" type="checkbox"/>
Punches	<input checked="" type="checkbox"/>	Crayons	<input type="checkbox"/>
Hatchets	<input checked="" type="checkbox"/>	Grading Stakes	<input type="checkbox"/>
Staplers	<input checked="" type="checkbox"/>	Plumb line	<input checked="" type="checkbox"/>
Pincers	<input checked="" type="checkbox"/>	Transit	<input checked="" type="checkbox"/>
Scrapers	<input checked="" type="checkbox"/>		
Paint Rollers	<input type="checkbox"/>		
Wallpaper Rollers	<input type="checkbox"/>		
Reamers	<input type="checkbox"/>		

ENVIRONMENTAL SETTING

Record an "X" after each item to indicate where the work is performed.

Agriculture	<input type="checkbox"/>	Financial	<input type="checkbox"/>
Commercial:		Government Service	<input type="checkbox"/>
Business Service	<input type="checkbox"/>	Industrial	<input type="checkbox"/>
Food and Beverage	<input type="checkbox"/>	Insurance	<input type="checkbox"/>
Lodging Service	<input type="checkbox"/>	Legal	<input type="checkbox"/>
Personal Service	<input type="checkbox"/>	Library	<input type="checkbox"/>
Printing and Publishing	<input type="checkbox"/>	Medical Service	<input type="checkbox"/>
Repair Service	<input type="checkbox"/>	Military	<input type="checkbox"/>
Sales	<input type="checkbox"/>	Nonprofit	<input type="checkbox"/>
Communications	<input type="checkbox"/>	Office Service	<input type="checkbox"/>
Conservation	<input type="checkbox"/>	Recreation	<input type="checkbox"/>
Construction	<input checked="" type="checkbox"/>	Social Service	<input type="checkbox"/>
Correctional	<input type="checkbox"/>	Subsurface and Space	<input type="checkbox"/>
Educational	<input type="checkbox"/>	Transportation	<input type="checkbox"/>
Entertainment	<input type="checkbox"/>	Utilities	<input type="checkbox"/>
Exhibition Center	<input type="checkbox"/>	Other (specify)	<input type="checkbox"/>

LIST OF INVENTORIES INCLUDED IN SERIES I

Administrative and Management Occupations
Agriculture and Related Work
Air Transportation and Related Occupations
Architectural, Engineering, and Related Occupations
Clerical and Related Occupations
Counseling, Guidance, Social Services, and Related Work
Fine Arts Occupations
Inspection, Testing, and Related Work
Mathematics, Physical Sciences, and Related Work
Mechanical Repairing and Related Work
Medical and Health Services Occupations
Merchandising and Related Occupations
Motor Transportation and Related Work
Performing Arts Occupations
Photography, Communications, and Related Work
Physical Science Research
Pipeline Transportation and Related Work
Psychological Research and Related Work
Public Utilities and Related Work
Railroad Transportation and Related Work
Water Transportation and Related Work
Writing, Editing, and Related Work