



Wage Survey

*A survey of compensation
for production, maintenance
and service positions.*



2010 SURVEY CALENDAR

Participation will help blow away the asterisks!

Survey	Participation Begins	Participation Ends	Results Distributed
2009/2010 National Sales Compensation and Practices Survey	September 28, 2009	October 30, 2009	February, 2010
2010 Non-Profit Survey	November 30, 2009	January 15, 2010	April 5, 2010
2009 Fourth Quarter Turnover Survey	December 28, 2009	January 29, 2010	February 12, 2010
2010 National Executive Compensation Survey	January 6, 2010	February 19, 2010	May 21, 2010
2010 Salary Survey	February 8, 2010	March 26, 2010	June 11, 2010
2010 Wage Survey	February 8, 2010	March 26, 2010	June 11, 2010
2010 Library Personnel Salary Survey	February 8, 2010	March 26, 2010	June 11, 2010
2010 First Quarter Turnover Survey	March 29, 2010	April 23, 2010	May 7, 2010
2010 National IT/Engineering Compensation Survey	May 3, 2010	June 14, 2010	September 24, 2010
2010 Annual Pay Trends Survey	June 14, 2010	July 16, 2010	August 13, 2010
2010 Second Quarter Turnover Survey	June 28, 2010	July 23, 2010	August 6, 2010
2010 Holiday Survey	July 5, 2010	August 6, 2010	August 27, 2010
2011/2012 National Policies & Benefits Survey	August 2, 2010	September 17, 2010	February, 2011
2010 Medical Contribution and Practices Survey	August 23, 2010	September 17, 2010	October 8, 2010
2010 Third Quarter Turnover Survey	September 27, 2010	October 22, 2010	November 5, 2010
2010/2011 National Sales Compensation and Practices Survey	September 27, 2010	October 29, 2010	February, 2011
2010 Human Resources Vendor Survey	October 25, 2010	November 29, 2010	January, 2011
2010 Fourth Quarter Turnover Survey	December 27, 2010	January 28, 2011	February 11, 2011

Please flip over for survey FAQs and contact information

2010 WAGE SURVEY QUESTIONNAIRE
ALPHABETICAL INDEX OF JOBS
 Production, Maintenance and Service Positions

<u>Job Title</u>	<u>Job Code</u>	<u>Description Page</u>
Assembler, Light I (Non-Complex), grade 11	101.009	3
Assembler, Light II (Moderate Complexity), grade 5	101.003	3
Assembler, Light III (High Complexity), grade 3	101.001	3
Assembler, Printed Circuit Board, grade 8	103.561	5
Assembler, Printed Circuit Board, grade 10	103.013	5
Assembly Group, Lead, grade 2	101.581	2
Assembly Group, Lead, grade 4	101.582	2
Assembly Group, Lead, grade 6	101.155	3
Attendant, Tool Crib, grade 8	117.479	42
Attendant, Tool Crib, grade 10	117.022	42
Attendant, Lead, Tool Crib, grade 6	117.477	40
Brazer, grade 7	118.025	44
Carpenter, grade 4	109.027	22
Checker/Selector/Picker, Stock, grade 8	116.031	39
Chucking Machine, Lead, (Automatic), grade 4	107.417	14
Cutter, Die (Automatic), grade 5	113.041	29
Cutter, Gear, grade 4	107.046	12
Cutter, Gear, grade 6	107.048	12
Driver I, grade 7	116.054	35
Electrician I (Assistant), grade 6	109.060	22
Electrician II (Journey), grade 4	109.058	23
Electrician III (Master), grade 2	109.056	23
Electrician, Production, grade 3	103.061	6
Electrician, Production, grade 5	103.063	6
Filler, Hand, grade 9	102.528	4
Filler, Machine, grade 8	102.529	4
Finisher, grade 8	104.577	7
Finisher, Mold Polisher, grade 6	117.614	42
Forklift Driver (Power), grade 8	116.124	35
Former, Roll, grade 7	115.078	33
General Heavy Production Labor, grade 7	107.623	12
General Light Production Labor, grade 8	107.132	12
Granulator, grade 6	102.080	4
Grinder, Centerless, grade 6	107.082	11
Grinder, External, grade 6	107.578	13
Grinder, External, grade 8	107.090	13
Grinder, Internal, grade 6	107.579	13
Grinder, Internal, grade 8	107.097	13
Grinder, Lead, grade 3	107.427	15
Grinder, Rough, grade 8	107.100	13
Grinder, Surface, grade 6	107.105	13
Grinder, Surface, grade 8	107.107	13
Grinder, Tool, grade 4	117.110	43
Grinder, Tool, grade 5	117.111	43
Grinder, Universal, grade 4	107.115	13

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Handler, Material, grade 10	116.126	37
Handler, Material (Forklift Driver), grade 7	116.123	37
Handler, Material and/or Warehouse Laborer, Material, grade 9	116.125	37
Handler, Material, Lead, grade 6	116.121	36
Handler, Material, Lead, grade 7	116.122	35
Helper, Maintenance, grade 7	109.128	24
Helper, Maintenance, grade 9	109.130	24
Helper, Mold Maker, grade 9	117.613	41
Helper, Press, grade 8	113.570	29
Injection Machine, Lead, grade 4	112.159	28
Inspection Group, Lead, grade 4	106.157	9
Inspection Group, Lead, grade 6	106.583	9
Inventory Control Clerk/Cycle Counter, grade 9	116.032	35
Labeler, grade 8	116.580	35
Lathe, Lead, (Turret), grade 3	107.584	15
Machining Center, Lead, (CNC), grade 4	108.553	21
Machinist I, grade 5	107.163	16
Machinist II, grade 4	107.625	16
Machinist III, grade 3	107.588	16
Maker, Lead Tool, Die and Gauge, grade 1	117.184	40
Maker, Model, grade 1	117.173	41
Maker, Model, grade 2	117.174	41
Maker, Model, grade 3	117.175	41
Maker, Mold, grade 2	117.179	41
Maker, Plate, grade 4	113.589	29
Maker, Tool and Die I, grade 4	117.187	42
Maker, Tool and Die II, grade 3	117.186	42
Maker, Tool and Die III, grade 2	117.185	43
Matcher, Color, grade 6	104.533	7
Mechanic, Automotive, grade 5	109.189	22
Mechanic, Machine Maintenance I, grade 3	109.165	23
Mechanic, Machine Maintenance II, grade 2	109.164	24
Mechanic, Machine Maintenance III, grade 1	109.624	24
Mechanic, Maintenance, Buildings/Grounds I, grade 6	109.611	22
Mechanic, Maintenance, Buildings/Grounds II, grade 2	109.610	22
Milling Machine, Lead grade 4	107.585	15
Millwright, grade 3	109.191	25
Mixer, Batch, grade 7	102.534	4
Multi-Machine, Lead, (Machining), grade 4	107.586	19
Multi-Machine, Lead (Machining), grade 6	107.587	19
Office Janitor, grade 10	114.467	31
Oiler, grade 7	109.591	25
Operator, Auto Insertion Machine, grade 6	103.011	5
Operator, Automated Assembly Machine, grade 6	101.557	2
Operator, Automated Assembly Machine, grade 8	101.559	2
Operator, Balancing Machine, grade 6	101.198	2

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Operator, Boring Machine, grade 3	107.201	11
Operator, Broaching Machine, grade 7	107.592	11
Operator, Chucking Machine (Automatic), grade 6	107.214	11
Operator, Chucking Machine (Automatic), grade 8	107.593	11
Operator, Cold Heading Machine, grade 4	107.218	11
Operator, Cold Heading Machine, grade 6	107.219	11
Operator, Crane, grade 7	116.222	35
Operator, Degreaser, grade 8	104.224	7
Operator, Die Casting Machine, grade 7	110.227	26
Operator, Die Cutter, grade 8	113.040	29
Operator, Drill Press, grade 5	107.594	12
Operator, Drill Press, grade 7	107.235	12
Operator, Drill Press, grade 9	107.237	12
Operator, Extruder, grade 4	112.243	27
Operator, Extruder, grade 5	112.244	27
Operator, Extruder, grade 7	112.245	27
Operator, Fabricating Machine (Sheet Metal), grade 6	115.248	32
Operator, Fabricating Machine (Sheet Metal), grade 8	115.250	32
Operator, Forming Machine (Plastic), grade 4	112.255	27
Operator, Forming Machine (Plastic), grade 6	112.256	27
Operator, Injection Machine, grade 8	112.590	28
Operator, Lathe (Bench), grade 7	107.261	14
Operator, Lathe (Engine), grade 5	107.263	14
Operator, Lathe (Engine), grade 7	107.596	14
Operator, Lathe (Turret), grade 5	107.598	14
Operator, Lathe (Turret), grade 7	107.272	14
Operator, Lathe (Turret), grade 9	107.274	14
Operator, Machine Tool I, grade 6	117.278	40
Operator, Machine Tool II, grade 5	117.277	40
Operator, Machine Tool III, grade 3	117.275	40
Operator, CNC Machining Center I, grade 9	108.615	20
Operator, CNC Machining Center II, grade 6	108.546	20
Operator, CNC Machining Center III, grade 5	108.545	20
Operator Milling Machine, grade 5	107.287	17
Operator Milling Machine, grade 7	107.289	16
Operator Milling Machine, grade 9	107.291	16
Operator, Molding Press (Rubber), grade 6	112.539	28
Operator, Multi-Machine (Machining), grade 6	107.280	19
Operator, Multi-Machine (Machining), grade 8	107.282	19
Operator, Press Brake, grade 4	115.295	32
Operator, Press Brake, grade 6	115.599	32
Operator, Press Brake, grade 8	115.600	32
Operator, Printing Press (Miscellaneous), grade 8	113.303	29
Operator, Printing Press (Miscellaneous), grade 6	113.302	29
Operator, Printing Press (Multicolor Offset), grade 4	113.307	30
Operator, Printing Press (Multicolor Offset), grade 6	113.309	30
Operator, Printing Press (Multicolor Web Press), grade 3	113.571	30
Operator, Punch Press, grade 6	107.313	17

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Operator, Punch Press, grade 8	107.315	17
Operator, Punch Press, grade 10	107.317	17
Operator, Saw (Cut Off), grade 8	107.324	17
Operator, Screw Machine (Automatic), grade 3	107.329	18
Operator, Screw Machine (Automatic), grade 5	107.331	17
Operator, Screw Machine (Automatic), grade 7	107.333	17
Operator, Second Press (Multicolor Web Press), grade 5	113.572	30
Operator, Setup, (CNC) Grinding Machine, grade 5	108.616	20
Operator, Setup, (CNC) Laser Machine, grade 5	108.620	21
Operator, Setup, (CNC) Milling Machine, grade 5	108.617	21
Operator, Setup, (CNC) Turning Center, grade 5	108.618	21
Operator, Setup, (CNC) Wire Electrical Discharge Machine, grade 4	108.619	21
Operator, Shear, grade 5	115.339	33
Operator, Shear, grade 6	115.340	33
Operator, Shear, grade 8	115.342	33
Operator, Sheeter, grade 6	113.343	30
Operator, Silk Screen, grade 7	103.602	6
Operator, Slitter, grade 7	115.565	34
Operator, Tumbler, grade 9	104.353	8
Operator, Utility, grade 9	107.621	19
Packer, grade 6	116.363	37
Packer, grade 8	116.365	37
Packer, grade 10	116.603	37
Packer (Automated Line), grade 9	116.573	38
Packer (Automated Line), grade 10	116.574	38
Packer, Lead, grade 5	116.362	36
Painter, Maintenance, grade 6	109.604	24
Painter, Production, grade 5	104.374	8
Painter, Production, grade 7	104.376	8
Painter, Production, grade 9	104.378	8
Plant Janitor/Sanitation, grade 8	114.034	31
Plater, grade 5	104.384	7
Plater, grade 7	104.386	7
Polisher-Buffer, grade 5	104.387	7
Polisher-Buffer, grade 7	104.389	7
Processor, Chemical, grade 4	102.397	4
Processor, Chemical, grade 6	102.605	4
Punch Press, Lead, grade 4	107.443	15
Punch Press, Lead, grade 6	107.445	15
Quality Inspector/Auditor I, grade 9	106.142	9
Quality Inspector/Auditor II, grade 7	106.140	9
Quality Inspector/Auditor III, grade 5	106.138	10
Racker, grade 10	104.404	8
Receiver, grade 8	116.408	38
Receiver, Lead, grade 6	116.406	36

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Repairer, Instrument, grade 4	109.411	23
Repairer, Tool, Die & Mold, grade 3	117.622	43
Security Guard, grade 8	114.116	31
Setter, Fabricating Machine (Sheet Metal), grade 5	115.422	32
Setter, Injection Machine, grade 5	112.541	28
Screw Machine, Lead, (Automatic), grade 2	107.447	15
Setter, Welding, grade 6	118.453	45
Shipper, grade 6	116.606	38
Shipper, grade 8	116.607	38
Shipping and/or Receiving Clerk, grade 7	116.608	38
Shipper-Receiver, Lead, grade 5	116.550	36
Solderer, Wave, grade 7	103.463	6
SPC Technician, grade 8	106.548	10
Storekeeper, grade 8	116.466	39
Storekeeper, Lead, grade 6	116.464	36
Tester/Analyzer, grade 3	106.471	10
Tester/Analyzer, grade 5	106.609	10
Treater, Heat, grade 4	110.480	26
Treater, Heat, grade 6	110.482	26
Treater, Heater, grade 8	110.260	26
Welder, Arc, grade 5	118.489	44
Welder, Arc, grade 7	118.491	44
Welder, Combination, grade 5	118.495	44
Welder Layout/Assembly, grade 5	118.452	44
Welder, Lead, Arc, grade 3	118.487	44
Welder I, grade 9	118.500	45
Welder II, grade 3	118.493	45
Welder (Maintenance), grade 3	109.496	24
Winder, Coil (Electrical or Electronic), grade 7	103.501	5
Wirer, Electrical or Electronic, grade 5	103.503	5
Wirer, Electrical or Electronic, grade 7	103.505	5
Worker, Layout (Sheet Metal), grade 4	115.512	32
Worker, Sheet Metal, grade 4	115.524	33
Worker, Sheet Metal, grade 5	115.525	33
Worker, Sheet Metal, grade 7	115.527	33



2010 WAGE SURVEY QUESTIONNAIRE FUNCTION GROUP LIST

Please note: We have only listed the 3 numbers after the decimal of the job number for the online survey, instead of the full 6-digit job number.

The first 3 numbers to the left of the decimal before each job indicate the FUNCTION GROUP as follows:

FUNCTION GROUPS:

- (101) Assembly
- (102) Chemical and Pharmaceutical
- (103) Electrical/Electronic
- (104) Finishing
- (106) Quality Assurance (Inspection and Testing)
- (107) Machining/Multi-Machining
- (108) Computer Numeric Controlled (CNC) Operations
- (109) Maintenance
- (110) Metal Processing
- (112) Plastic
- (113) Printing and Paper
- (114) Service
- (115) Sheet Metal
- (116) Shipping, Receiving, Stores and Material Handling
- (117) Tooling
- (118) Welding

The function group numbers are not unique per job, whereas the numbers to the right of the decimal are and indicate the true job number.



2010 WAGE SURVEY JOB DESCRIPTIONS

ASSEMBLY (101)

101.557 AUTOMATED ASSEMBLY MACHINE OPERATOR

GRADE 6

Setup automated assembly machines. Make necessary machine adjustments, input start up instructions and load feeder with proper parts. Monitor line operation and clear line jams, troubleshoot machine operating problems, replace defective machine components and make minor repairs. Keep line supplied with parts. Inspect assembled units for proper function dimensions and required quality standards.

101.559 AUTOMATED ASSEMBLY MACHINE OPERATOR

GRADE 8

Input machine start up instructions, make specified machine adjustments. Load feeder with proper parts. Monitor line operations and clear line jams. Keep line supplied with parts. Inspect assembled units for proper function, dimensions and required quality standards.

101.198 BALANCING MACHINE OPERATOR

GRADE 6

Set up equipment and balance a wide variety of wheels, blowers, rotors or armatures. Use drawings, charts, variable gauges, welding equipment, machine and hand tools. Check for proper static or dynamic balance. Adjust machine to determine weight and angles of unbalance, adding proper weight, weldings or removal material.

101.582 LEAD ASSEMBLY GROUP

GRADE 4

Lead a group of seldom over 25 persons performing assembly operations, following standardized methods on mechanical, electrical or electronic parts, involving interchangeable parts requiring simple fitting, adjustment or alignment for free working and proper parts clearance. Check and arrange for availability of materials, tools and fixtures. Set and adjust machines for proper operation. Assign work. Prepare reports on group activities. Perform any variety of operations within group to maintain flow of work.

101.581 LEAD ASSEMBLY GROUP

GRADE 2

Lead a group of over 25 persons performing assembly operations on a variety complex of mechanical, electrical or electronic subassemblies or complete products having a considerable number of details. Fit to very close tolerances and operating requirements, make tests and final adjustments. Check and arrange for availability of materials, tools and fixtures. Set and adjust machines for proper operation. Assign work, instruct operators on proper operation, safe practices and housekeeping. Prepare reports on group activities. Perform any variety of operations within group to maintain flow of work.

101.155 LEAD ASSEMBLY GROUP

GRADE 6

Lead a group of assemblers performing simple assembly of subassemblies or products of a less complex nature.

101.009 LIGHT ASSEMBLER I (NON-COMPLEX)

GRADE 11

First of three levels of light assembler; highly repetitive, simple short-cycle mechanical or electro-mechanical assembly following prescribed routine or where method of assembly is obvious. No diploma or experience required. All training is on-the-job. Requires the ability to follow demonstrated steps. Requires simple adjusting with liberal tolerances and no fitting. Work is typically performed at a bench and may include walking or standing some of the time. Work may be in a clean room environment. Most electronic assembly will fall within the three light assembler classifications or the subminiature classifications.

101.003 LIGHT ASSEMBLER II (MODERATE COMPLEXITY)

GRADE 5

Second of three levels of light assembler; diversified mechanical or electro-mechanical assembly or sub-assembly of units that are moderately complex, requiring adjusting, fitting and aligning to ordinary tolerances. The job typically requires a high school diploma and related training or experience of less than 1 year, or equivalent. Requires print reading and basic math skills as well as the ability to use common hand tools and operate assembly machines. Works from drawings or specifications. May inspect and test complete unit. May rotate stations in a work cell. Work is typically performed at a bench and may include walking or standing some of the time. Work may be in a clean room environment. Most electronic assembly will fall within the three light assembler classifications or the subminiature classifications.

101.001 LIGHT ASSEMBLER III (HIGH COMPLEXITY)

GRADE 3

Third of three levels of light assembler; complete assembly of intricate units composed of a large number of component parts, or of large and complicated units, requiring print reading and basic math skills as well as the ability to use common hand tools and operate assembly machines. The job typically requires a high school education and 2+ experience, or equivalent. Under limited supervision performs highly diversified work involving considerable adjusting, fitting and aligning to very close tolerances and strict inspection standards. Works from drawings or specifications. May plan assembly procedures and direct the work of others. May test or inspect assembled units. May rotate stations in a work cell and/or is expected to have mastery of all steps in a process. Work is typically performed at a bench and may include walking or standing some of the time. Work may be in a clean room environment. Most electronic assembly will fall within the three light assembler classifications or the subminiature classifications.

CHEMICAL AND PHARMACEUTICAL (102)**102.534 BATCH MIXER****GRADE 7**

Operate, clear, load and unload mixing machine with a wide variety of pastes, solvents and driers in large batches, according to formulas. Operate and unload mixer. Obtain raw materials and move finished stock.

102.605 CHEMICAL PROCESSOR**GRADE 6**

Change over, adjust and operate a limited variety of chemical equipment, involving such operations as grinding, filtering, separating, drying, combining and mixing pre-weighted liquids and solids to prepare large batches of products having few variations. Setup and sequence is prescribed and changes in temperature, pressure and time cycle are made within narrow limits. Observe operations, obtain samples for approval, correct as instructed to maintain quality standards, move material and containers and assist in cleaning equipment.

102.397 CHEMICAL PROCESSOR**GRADE 4**

Operate a wide variety of chemical processing equipment involved in preparing solid chemical compounds for experimental or research purposes. Weigh and measure ingredients, clean, load, operate and unload cooking kettles or vats, vacuum containers, extractors, filtration units, stills, dryers and auxiliary equipment. Assist in developing processing procedures, suggesting changes to facilitate operation and improve yield quality. Perform routine equipment maintenance and repairs. Move materials and containers as required.

102.080 GRANULATOR**GRADE 6**

Change over, adjust and operate diverse equipment for large batch processing of a range of chemical or pharmaceutical products, where processes and setups selected are standardized. Check product during process to detect any obvious imperfections and make adjustments as directed. Load and unload equipment, move material or containers and clean machines.

102.528 HAND FILLER**GRADE 9**

Fill various size cans, drums and pails by placing container under, and opening, storage tank outlet valve. Cover and move filled containers, stencil if required.

102.529 MACHINE FILLER**GRADE 8**

Fill cans, drums and pails of various sizes by operating filling machine. Change over and adjust equipment such as strainers and filters. Obtain containers and supplies. Make minor adjustments as necessary to keep machine operating properly. Cover and move filled container, stencil if required.

ELECTRICAL OR ELECTRONIC (103)**103.011 AUTO INSERTION MACHINE OPERATOR****GRADE 6**

Set up and operate auto insertion machine. Monitor line operations, make adjustments, change over components.

103.501 COIL WINDER (ELECTRICAL OR ELECTRONIC)**GRADE 7**

Wind coils of various sizes, making ordinary setups of ordinary complexity on universal and solenoid winding machines or lathe with attachment. Select loop winders, coil forms, pins and wire for primary and secondary winding. Ensure proper number of turns per layer, coil, and tension, spot as instructed, insulate, cut leads, tie in ends and lacquer.

103.505 ELECTRICAL OR ELECTRONIC WIRER**GRADE 7**

Install, connect and solder a variety of wiring conduit and fittings on electrical or electronic units or products. Route wiring as specified. Cut wires of prescribed gauge to length. Clean, assemble and fasten designated terminals. Follow color codes to make wiring harness as required and make standard circuit continuity, short circuit or performance tests. Trace and resolve ordinary wiring difficulties.

103.503 ELECTRICAL OR ELECTRONIC WIRER**GRADE 5**

Plan, lay out and perform diversified intricate wiring on a wide variety of products and component parts, such as control panels, motors, electric chassis and special complicated equipment. Determine polarity to ensure effective operation in running, bending and fitting wires, forming busbars and cables in limited space. Install conduit and fittings and connect switches, control panels, motors and electronic circuits. Establish wiring procedure for production on first unit or model. Make wiring charts.

103.013 PRINTED CIRCUIT BOARD ASSEMBLER**GRADE 10**

Perform routine subassembly completion or final assembly of a range of printed circuit boards. Follow specific instructions and samples, using hand tools such as long-nose pliers, side cutter and soldering iron to assemble and secure test jacks, handles, front panels and other miscellaneous parts to boards. Trim excess wire. Clean boards with solvent.

103.561 PRINTED CIRCUIT BOARD ASSEMBLER**GRADE 8**

Perform complete assembly of a full range of printed circuit boards, which includes mounting electronic components such as semiconductors, resistors and capacitors. Work from diagrams and operating procedures. Insert wires; solder components and leads into eyelets or terminals manually or with automatic machine. Adjust machine controls. Clear machine jams. Connect wire harnesses, change board circuitry as instructed. Trim excess wires and clean boards with solvent as required.

103.063 PRODUCTION ELECTRICIAN

GRADE 5

Install electrical equipment, controls and wiring on standard products. Select operation sequences, locate equipment and wiring details per specifications, cut and bend conduit, pull wires, make connections, make standardized tests and adjustments as required.

103.061 PRODUCTION ELECTRICIAN

GRADE 3

Plan, lay out and install a variety of complicated electrical equipment controls and wiring on a wide variety of standard and non-standard products. Select location of minor units, work out installation details. Wire complicated circuits with a large number of connections. Make standard tests, adjust as required. Improvise special tests as required for non-standard products. May assist and direct lower class electricians.

103.602 SILK SCREEN OPERATOR

GRADE 7

Set up and operate screen printer on a wide variety of circuit boards, instrument panels and miscellaneous parts, requiring precise registration and ink penetration. Select and clean screen and fixtures, select inks and paint, mixing and thinning as necessary. Make simple, holding or aligning devices as required. Check and touch up definition on work piece, spray paint special parts, load and unload drying oven and etching conveyor. Use circuit board, fabrication and screen making equipment as required.

103.463 WAVE SOLDERER

GRADE 7

Set up and operate automatic wave solder machine to solder multiple connections on printed circuit boards. Operate and maintain foam fluxer, using hydrometer to ensure specific gravity and resin ratio. Operate pre-heater, checking solder level and temperature. Adjust conveyor and wave heights. Check components for proper seating and for soldering quality. Load, unload and move work. Wash and clean equipment and tools as necessary, drain and replace solders and oil periodically. Report defective materials and unusual conditions to supervisor.

FINISHING (104)**104.533 COLOR MATCHER**

GRADE 6

Color or tint paints, enamels and other coatings to match standard sample or according to specifications, using dry and liquid pigments. Re-shade to meet test requirements. Adjust viscosities to meet standards. Operate power mixer or hand mix.

104.224 DEGREASER OPERATOR

GRADE 8

Operate degreasing basket, conveyor or tank type of equipment to remove oil, grease and other surface foreign matter from a wide variety of sheet metal or machined parts, castings and assemblies. Load and position part to permit draining of solution. Distill and clean solution tank periodically.

104.577 FINISHER

GRADE 8

Perform a variety of operations to remove burrs or sharp edges, clean machined flat surfaces on parts. Use belt sanders, abrasive charged wheels, fixtures, foot or hand presses, files and scrapers.

104.386 PLATER

GRADE 7

Plate a variety of parts or products, following prescribed procedures. Use formulas, temperatures, plating cycles and cleaning methods specified. Check solutions and plate thicknesses.

104.384 PLATER

GRADE 5

Set up and perform a range of electroplating processes to obtain finishes such as copper, chromium, nickel and cadmium on diversified parts or products of various shapes and materials. Maintain solutions for cleaning and plating operations. Mix oxidizing solutions for effective cleaning and plating operation, and colors for shading. Test current density to determine timing for desired plate thickness. Assist with design of special electrodes or holding fixtures for plating irregular shaped parts, and with development work on new products.

104.389 POLISHER-BUFFER

GRADE 7

Repetitively polish, grind or buff large lots of a variety of production parts. Maintain specified finish and shape and avoid cutting through plating. Use prescribed wheels and abrasives, build up, dress and balance wheels.

104.387 POLISHER-BUFFER

GRADE 5

Grind, polish, glaze and buff a variety of work of unusual and intricate shape or design requiring considerable care to maintain contours, radii and close dimensions. Obtain even color buff on high grade plated work or castings. Plan operation sequences, select wheels, belts, discs, abrasives and dressings. Build up, glue, surface, dress and balance various kinds of wheels. Assist lower class polishers and buffers.

104.378 PRODUCTION PAINTER

GRADE 9

Brush paint or dip a variety of parts in commercially prepared coating materials. Mix paints with thinner to obtain proper consistency.

104.376 PRODUCTION PAINTER

GRADE 7

Mix a variety of standard coating materials to proper consistency. Powder coat parts. Mask parts as necessary and set prescribed oven temperature and conveyor speed.

104.374 PRODUCTION PAINTER

GRADE 5

Mix paints, enamels or lacquers to specified colors, consistencies and viscosities for spraying or brushing. Prepare surfaces and apply a wide variety of coating to obtain high grade and decorative finishes on large parts or products. Skill required to match colors in shading, two-toning and hand graining, and in distribution and baking of special and unusual finishes. Allow for change in color during drying or baking. Touch up marred surfaces.

104.404 RACKER

GRADE 10

Perform a variety of racking, stringing and masking operations on a wide variety of metal or ceramic parts prior to plating, enameling or varnishing. Visually check for material defects.

104.353 TUMBLER OPERATOR

GRADE 9

Tumble castings of metal parts until clean and smooth. Group material for cleaning by size and structure and add abrading material such as jackstones, picks, pebbles, sand and sawdust scrap. Load barrels, clamp covers and tumble for prescribed time. Unload barrels and deliver castings or parts as directed.

QUALITY ASSURANCE (INSPECTION AND TESTING) (106)

106.583 LEAD INSPECTION GROUP

GRADE 6

Act as group leader or setter responsible for group seldom over 10 people. First piece, process or final inspect a variety of simple size parts, subassemblies or completed assemblies. Plan inspection methods and sequence when not specified. Make gauging setups. Responsible for stopping production in case of excessive rejects. Check work and report on group activities. Performing any variety of operations within group to maintain work flow.

106.157 LEAD INSPECTION GROUP

GRADE 4

Act as group leader or setter responsible in a group of seldom over 10 persons. Perform inspection operations involved in a range of machining operations or the inspection of mechanical, electronic or electrical subassemblies, mechanisms and complete products. Make decisions, concerning allowable variations from specifications or standards. Check and arrange for availability of materials, gauges, inspection instruments and work places for proper operation. Make standardized operating, hydraulic or electrical tests. Plan inspection methods and sequence when not specified. Make gauging setups. Responsible for stopping production in case of excessive rejects. Check work and report on group activities. Perform any variety of operations within group to maintain work flow.

106.142 QUALITY INSPECTOR/AUDITOR I

GRADE 9

First of three levels of quality control inspector. The job typically requires high school level math and problem solving skills and work experience of less than 1 year, or equivalent. With readily available supervision, performs repetitive inspection following standardized methods and procedures. Visually inspects or checks parts using a variety of precision measuring instruments or against fixed samples. Checks dimensions and finishes against blueprint or work order specifications. At this level, workers may perform finishing operations to correct rejected parts or assist with other production activities.

106.140 QUALITY INSPECTOR/AUDITOR II

GRADE 7

Second of three levels of quality control inspector/auditor. The job typically requires high school level math and problem solving skills, course work in metrics and 2+ years of work experience, or equivalent. Under limited supervision performs diversified bench or floor inspection of a variety of standard or custom parts, products, or materials that are being produced in-house or received from vendors. Uses a variety of precision measuring instruments, including electronic devices. Checks color, finish, dimensions, hardness, density or other measurable or observable characteristics of material. Performs detailed first article inspections following the installation of new or revised molds and dies. May recommend, write, or modify sampling and inspection procedures. May use statistical tools to chart variance. Does not include tool room inspectors.

106.138 QUALITY INSPECTOR/AUDITOR III**GRADE 5**

Third of three levels of quality control inspector/auditor. The job typically requires high school level math and problem solving skills, course work in metrics and 4+ years of work experience, or equivalent. Following management guidelines, performs final inspection for quality, appearance and performance of complicated equipment, instruments or products, or of diversified parts and assemblies. Work may be highly diversified. May include auditing and qualifying vendors on location. Plans inspection procedures and may be required to devise unusual measuring or gauging set-ups. Uses a variety of precision measuring instruments including electronic devices. May use statistical tools to chart variance. Includes tool room inspectors.

106.548 SPC TECHNICIAN**GRADE 8**

Select random sample parts from production operations on a scheduled basis to perform statistical process control (SPC) procedures. Record readings, perform specified calculations and plot required data on chart.

106.609 TESTER/ANALYZER**GRADE 5**

Test standard products of mechanical, electric, electronic or hydraulic type to determine specific operating requirements, recording and reporting defects. Set up and operate test equipment, within specified ranges, and make reports by recording readings. Analyze detected board problems and make necessary repairs.

106.471 TESTER/ANALYZER**GRADE 3**

Perform mechanical, electrical, electronic or hydraulic and performance tests on a variety of complicated products or apparatus and special products, following general procedures and methods. Calibrate, set up and attach test equipment. Adapt test equipment for spatial tests. Use a variety of precision measuring instruments. Perform tests and adjust products. Record and report test results and abnormal variations to superior. Analyze detected board problems and make necessary repairs. Instruct and direct one or two lower graded inspectors/testers.

MACHINING/MULTI-MACHINING (107)**107.201 BORING MACHINE OPERATOR****GRADE 3**

Bore, mill and drill a wide variety of custom and standard, large, complicated and expensive castings, forgings and parts to close tolerances on a large number of interrelated locations. Make difficult setups, requiring extensive blocking and aligning of irregular shaped parts. Locate work in relation to finished surfaces, block and shim to prevent moving or springing parts, determine basic reference point and check parts to ensure adequate allowance. Select feeds, speeds and tooling for materials and condition. Determine operation sequence for a considerable range of unusual and difficult operations.

107.592 BROACHING MACHINE OPERATOR**GRADE 7**

Perform broaching operations involving the use of fixtures or where tool locates center on ordinary broaching of holes, key ways or simple forms. Adjust cutting speeds and change worn cutters. Check part dimension using precision measuring tools.

107.082 CENTERLESS GRINDER**GRADE 6**

Make exacting setups and perform through form step and taper grinding on a variety of parts requiring accurate dimensions and concentricity. Dress wheels and make adjustments as required to compensate for wear to maintain close tolerances.

107.593 CHUCKING MACHINE OPERATOR (AUTOMATIC)**GRADE 8**

Operate one or more automatic chucking machines set up and checked by others. Check parts for visual defects, load and unload and check work. Make minor adjustments or replace dull tools. Tear down machine for next job.

107.214 CHUCKING MACHINE OPERATOR (AUTOMATIC)**GRADE 6**

Set up and perform a normal range of operations to close tolerances on one or more automatic chucking machines. Select operation sequence, tools, feeds, speeds, gears and cams. Assist in more difficult setups. Check parts for visual defects before loading. Load and unload machine, check work, make ordinary machine adjustments, grind or replace dull tools.

107.219 COLD HEADING MACHINE OPERATOR**GRADE 6**

Setup and operate cold header equipment to fabricate standard parts for wire coil stock. Select, install, align, adjust and check tools, machines and materials.

107.218 COLD HEADING MACHINE OPERATOR**GRADE 4**

Set up and operate cold header equipment to fabricate a wide variety of parts with exacting tolerances for wire coil stock. Plan and lay out operation sequence on new jobs. Adopt, alter or rework standard tools, dies and methods to meet special production or customer requirements. Select cams, tools, feeds, speeds and work procedures.

107.237 DRILL PRESS OPERATOR**GRADE 9**

Drill, ream, tap, spot face and counter sink standardized parts. Replace or sharpen dull tools. Use prescribed jigs, layouts, operation sequence, tools, feeds, speeds and reaming allowances.

107.235 DRILL PRESS OPERATOR**GRADE 7**

Change over and adjust drill press, involving leveling and blocking. Use prescribed jigs, layouts, operation sequence tools, feeds, speeds, reaming allowances. Drill, ream, tap, spot face and countersink a wide variety of parts to close tolerance. Replace or sharpen dull tools.

107.594 DRILL PRESS OPERATOR**GRADE 5**

Make setups requiring fairly involved leveling and blocking. Lay out work or use complicated jigs or boring fixtures. Select operation sequence, tools, feeds, speeds, and reaming allowance. Drill, ream, tap, spot face, bore, counterbore and countersink parts to exacting requirements, including deep hole and angle drilling. Grind or replace dull tools.

107.048 GEAR CUTTER**GRADE 6**

Cut a limited variety of gears to exacting tolerances. Work from drawings, samples or segments of broken gears to determine number of teeth, measure angle or tooth form. Work involves following standardized methods to make setups checked by others. Load and unload machine. Operate and adjust to maintain close tolerances. Check gears with gear calipers or testing fixture.

107.046 GEAR CUTTER**GRADE 4**

Cut a variety of standard gears to exacting tolerance. Work from drawings, samples, or segments of broken gears to determine number of teeth, measure angle, tooth form. Work involves making fairly complicated setups to close tolerances, using prescribed arbors, holding fixtures, change gears and cutters. Select and alter feeds, speeds and machine adjustments to suit varying conditions.

107.132 GENERAL LIGHT PRODUCTION LABOR**GRADE 8**

General production labor job, requiring the ability to follow demonstrated directions, or equivalent. The job typically requires the ability to follow demonstrated directions, no diploma is required and all training is typically given on-the-job, or equivalent. Incumbents perform a variety of production duties, such as tending machines, handling product, visual sorting or inspection, packing, or performing other operations that can be learned on-the-job in a short time. Work may require frequent moving or frequent exertion of light physical effort. Most of the time work can be performed while seated at a workbench, production line or next to a machine.

107.623 GENERAL HEAVY PRODUCTION LABOR**GRADE 7**

General production labor job. The job typically requires the ability to follow demonstrated directions, no diploma is required and all training is typically given on-the-job, or equivalent. Incumbents perform a variety of production duties, such as tending machines, handling product, visual sorting or inspection, packing, or performing other operations that can be learned on-the-job in a short time. Incumbents may use pallet jacks to move material in the work area. Work requires frequent moving, frequent exertion of moderate to heavy physical effort or frequent standing.

107.090 GRINDER (EXTERNAL)

GRADE 8

Change over, adjust and operate grinder, following standard methods, to straight or single shoulder grind parts to close tolerances. Dress wheels, where speeds and feeds are prescribed and wheel selection and setup are made by others.

107.578 GRINDER (EXTERNAL)

GRADE 6

Setup and grind a variety of parts having a number of unusual shoulders or steps, contours or tapers, to extremely close tolerances and high finish requirements. Plan rough and finish grinding, select finish grind allowance.

107.097 GRINDER (INTERNAL)

GRADE 8

Change over and adjust equipment to straight or single step grind a variety of parts to close tolerances, following standard methods, where setups and wheel selection are made by others and feeds and speeds are prescribed. Dress wheels.

107.579 GRINDER (INTERNAL)

GRADE 6

Set up and operate equipment to grind a variety of work shapes, number of steps, tapers, recesses or contours. Plan operation sequence, select type of wheel, feeds and speeds. Check and align parts to exacting tolerances on dimensions and concentricity. Devise methods of holding unusual forms. Dress wheels for special contours, set and adjust taper attachments.

107.100 GRINDER (ROUGH)

GRADE 8

Grind various shape castings, forgings or parts. Remove burrs, fins and gates, finish welded seams. Operate floor type or portable grinder.

107.107 GRINDER (SURFACE)

GRADE 8

Change over, adjust and operate equipment to surface grind a variety of parts, using magnetic chuck or holding fixture, to fairly close tolerances. Setup and wheel selection made by others. Feeds and depth of cut are prescribed. Dress wheels.

107.105 GRINDER (SURFACE)

GRADE 6

Make ordinary setups, involving use of chucks, holding fixtures, angle plates or clamping to table, and operate equipment to grind a wide variety of parts, to exacting dimensional, angular and surface locations, select operations, feeds and depth of cut.

107.115 GRINDER (UNIVERSAL)

GRADE 4

Make exacting and sometimes difficult setups, and operate equipment to external, internal and surface grind a wide variety of parts having shoulders, steps, tapers, contours or recesses, with close relationship of dimensions and surfaces. Plan methods and operate sequence. Select wheels, feeds, speeds and depth of cut, dress wheels for contours and recesses. Work to exacting tolerances and finish requirements.

107.261 LATHE OPERATOR (BENCH)

GRADE 7

Perform a range of ordinary operations such as turning, facing, drilling, reaming, boring and thread cutting on a variety of parts, to fairly close tolerances. Make simple setups requiring chucking of work or adjustments of collets and selecting speeds and tooling within a limited range. Sharpen and replace dull tools.

107.596 LATHE OPERATOR (ENGINE)

GRADE 7

Perform operations such as turning, boring, drilling, facing and thread cutting on a variety of standard parts, to close tolerances on several interrelated dimensions. Make exacting setups and select speeds, feeds, tooling and operation sequence.

107.263 LATHE OPERATOR (ENGINE)

GRADE 5

Perform a range of operations such as turning, boring, counterboring, facing, recessing and multiple and tape thread cutting on a variety of custom and standard parts, to close tolerances. Make some difficult setups, align work on face plate. Select operation method and sequence, tools, feeds and speeds. Devise tools for unusual operations.

107.274 LATHE OPERATOR (TURRET)

GRADE 9

Perform a limited number of simple operations after setups have been made and checked by others, such as drilling, reaming, boring, turning, or facing to fairly liberal tolerances, requiring simple checking or adjustment of collets, in accordance with prescribed routing. Report operating difficulties and necessity for tool sharpening or replacements to setter or superior.

107.272 LATHE OPERATOR (TURRET)

GRADE 7

Change over, adjust and perform a broad range of operations such as drilling, boring, facing, turning and chamfering on die chase threads to fairly close tolerances, using specified speeds, feeds and tooling. Grind or replace dull tools.

107.598 LATHE OPERATOR (TURRET)

GRADE 5

Plan exacting and fairly difficult setups and perform operations, including multi-cut tooling, on fairly complicated work, to close tolerances and relationships to stepped diameters, shoulders, recesses and formed sections for standardized products. Determine operation sequence and details. Select tools, feeds and speeds, set box tools, grind ordinary form tools.

107.417 LEAD CHUCKING MACHINE (AUTOMATIC)

GRADE 4

As a setter and group leader, set up machines to perform a wide variety of operations to close tolerances. Select operation sequences, tool holders, tools, machine accessories, feeds, speeds, cams or gears when not specified. Make exacting setups involving accurate cycle timing, part dimensions on surface relationships. Diagnose and remedy trouble, make a wide variety of machine adjustments. Operate machines when not engaged in setup. Instruct, assign operators and check work within group.

107.427 LEAD GRINDER**GRADE 3**

As a setter and group leader, set up a broad range of grinders to grind a wide variety of custom and standard parts having a number of steps, shoulders, recesses and tapers to extremely close tolerances and high degree of finish. Plan grinding sequence. Select work holding methods, machine accessories, wheels, feeds and speeds and finish grinding allowances. Check and arrange for availability of materials and fixtures and arrange work place for proper operation. Assign work and instruct operators. Responsible for maintaining quality and production standards within group.

107.584 LEAD LATHE (TURRET)**GRADE 3**

As a setter and group leader, responsible for a group performing a broad range of turret lathe operations requiring selecting speeds and feeds within a normal range, grinding tools and grinding form tools to shape. Check and arrange for availability of materials, tools and gauges and arrange work place for most efficient operations. Assign work and instruct operators and prepare reports on group activities. Perform any variety of operations within group to maintain flow of work.

107.585 LEAD MILLING MACHINE**GRADE 4**

As a setter and group leader, responsible for a group performing a variety of milling machine operations, either in hand mill or power mill or by profiling, using fixtures and vises and selecting tools, speeds and feeds for various material and operating conditions. Check and arrange for work availability of materials, tools and fixtures, arrange work place for most efficient operation. Assign work and instruct operators. Prepare reports on group activities. Perform any variety of operations within group to maintain flow of work.

107.445 LEAD PUNCH PRESS**GRADE 6**

As a setter and group leader, responsible for group performing operations on small and medium size presses to accomplish a variety of simple operations, such as blanking, piercing and simple forming. Adjust stroke, stock stops, automatic roll feed, straightener and knockout devices. Determine when dies need sharpening or adjustment.

107.443 LEAD PUNCH PRESS**GRADE 4**

As a setter and group leader, responsible for group performing a broad range of complicated work on presses of any capacity, involving the use of progressive, subpress, combination, lamination, complex forming and deep drawing dies. Set dies and make adjustments to air and mechanical knockout devices, automatic roll feed mechanism and length of ram stroke to produce parts in accordance with tolerances and requirements. Inspect first piece, diagnose and correct problems and determine when dies should be sharpened. Install specified dies for special work.

107.447 LEAD SCREW MACHINE (AUTOMATIC)**GRADE 2**

As a setter and group leader, responsible for group performing any job on a wide variety of single and multiple spindle automatic screw machines. Plan and lay out operations and operation sequences. Devise methods of machining intricate and unusual parts to very close tolerances, Set up auxiliary machine attachments. Select cams, tools, feeds and speeds and adapt cams and tools for short runs. Grind or replace and reset dull tools and grind form tools. Diagnose machine, tooling and coolant difficulties. Check setups of lower class setters and instruct as required.

107.163 MACHINIST I**GRADE 5**

First of three levels of skilled machinist work. The job typically requires a technical degree in machining and little or no work experience, or equivalent. Operates alternately more than one type of machine tool such as grinders, millers, drill presses, lathes, etc., on machining operations of moderate complexity. Projects have some diversity and may be in support of production operations or job shop machining. This is not a production machine tool operator.

107.625 MACHINIST II**GRADE 4**

Second of three levels of skilled machinist work. The job typically requires a technical degree and 2+ years of experience, or equivalent. Under limited supervision, performs complex machining operations in support of production operations or job shop machining. Operates various types of machine tools and performs progressive machining operations for metal parts, tools and machines with close tolerances or high finish requirements. Fits and assembles where necessary, using machinists' hand tools and measuring instruments. Has familiarity with working properties of various materials. May program CNC machines in the course of making parts. This is not a production machine tool operator.

107.588 MACHINIST III**GRADE 3**

Third of three levels of skilled machinist work. The job typically requires a technical degree and 5+ years of experience, or equivalent. Without technical supervision performs the most complex machining and fitting of all kinds of parts, tools, and machines in support of production operations or job shop machining. Lays out work from blueprints, sketches, and written specifications. Sets up and operates all available machine tools and performs progressive machining operations on work involving very close tolerances or unusual requirements. Determines operation sequences. Uses skillfully all machinists' hand tools and measuring instruments. Familiar with working properties of all materials. Programs CNC machine tools in the course of making parts. Fits and assembles where necessary. At this level machinists serve as technical resources for less experienced machinists. This is not a production machine tool operator.

107.291 MILLING MACHINE OPERATOR**GRADE 9**

Perform repetitive milling operations such as slotting, straddle or slab milling and cutting off, following instructions, where setups are made by others and speeds, feeds and cutters are prescribed. Insert work in fixtures or vise, check work, make simple adjustments, replace dull cutters.

107.289 MILLING MACHINE OPERATOR**GRADE 7**

Make ordinary setups and operate milling machine, following standard practice. Perform a variety of operations such as cutting key ways, slotting, straddle milling and end milling. Select cutters, feeds and speeds. Work to close tolerances.

107.287 MILLING MACHINE OPERATOR**GRADE 5**

Plan, lay out and perform varied and unusual operations, involving close tolerances between milled surfaces, sections and holes. Set up complicated or irregularly shaped parts or thin section castings, requiring careful blocking and clamping to avoid springing or distortion. Set adjustable boring head, dividing head for helical cutting, vertical or circular attachments. Select speeds, feeds and tooling, determine operation sequence.

107.317 PUNCH PRESS OPERATOR**GRADE 10**

Perform simple piercing, forming, riveting and staking operations on small parts and subassemblies of negligible weight, following detailed instructions, where setups are made by others. Detect and report faulty operations.

107.315 PUNCH PRESS OPERATOR**GRADE 8**

Perform blanking, piercing and forming operations on a variety of parts, following general instructions. Setups are made by others. Detect faulty operations and notify superior when dies need sharpening.

107.313 PUNCH PRESS OPERATOR**GRADE 6**

Perform blanking, piercing, forming and drawing operations on a limited variety of parts. Set up press and adjust stroke, stock stops, automatic roll feed and straightener and dial feeds. Adjust knock-out devices, air or spring pressure for drawing. Determine when dies need sharpening or adjustment.

107.324 SAW OPERATOR (CUT OFF)**GRADE 8**

Measure stock to length or dimension for angle cuts, scribe between dimensions, cut from layout, using fixtures provided on ganged or single piece angle work. Operate hack, band and abrasive saws, adjust speeds and feeds for a wide variety of materials, using charts furnished. Store stock materials, identify and fill orders.

107.333 SCREW MACHINE OPERATOR (AUTOMATIC)**GRADE 7**

Change over, adjust and perform a broad range of operations on single or multiple spindle automatics on a wide variety of parts, following standard procedures. Gauge work, remove, sharpen and reinstall tools.

107.331 SCREW MACHINE OPERATOR (AUTOMATIC)**GRADE 5**

Set up and perform a normal range of operations on single or multiple spindle automatics, following standard methods and procedures. Select cams, tooling, speeds and feeds. Grind tools to meet varying conditions and materials. Install specified cams and tools for special or short run jobs.

107.329 SCREW MACHINE OPERATOR (AUTOMATIC)**GRADE 3**

Set up and operate single and multiple spindle automatics on highly diversified work, to close tolerances. Plan operation sequences, select cams, tools, feeds and speeds. Devise methods and tools to perform intricate and unusual operations. Adapt tools and cams for short run jobs. Gauge work, replace or regrind dull tools, grind form tools. Diagnose machine, tooling and coolant difficulties. Check setups of lower class operators and instruct as necessary.

MULTI-MACHINE

107.587 LEAD MULTI-MACHINE (MACHINING)

GRADE 6

As a setter and group leader, responsible for group of persons operating drill presses, tapping machine, riveting machines, air presses, arbor presses, belt sanders and pneumatic screwdrivers and involving simple parts and subassemblies. Check on availability of materials and tools, set up machines and fixtures for proper operation and in proper sequence as required. Assign work and instruct operators. Prepare reports on group activities. Perform any variety of operations within group to maintain flow of work.

107.586 LEAD MULTI-MACHINE (MACHINING)

GRADE 4

As a setter and group leader, responsible for persons performing a broad range of operations such as drilling, milling and profiling, using hand screw or turret lathe, boring machines and grinders on a wide variety of parts. Check to verify availability of materials and tools, make setups, select tools, speeds and feeds for various materials and varying operating conditions and arrange work place for most efficient operation. Assign work and instruct operators. Prepare reports on group activities. Perform any variety of operations within group to maintain flow of work.

107.282 MULTI-MACHINE OPERATOR (MACHINING)

GRADE 8

Perform a limited range of operations on a limited variety of milling and profiling machines, bench lathes, drills, punch and hydraulic or foot operated presses. Setups, fixtures, tools, speeds and feeds are furnished by others. Check work, using various measuring instruments. Make minor adjustments, replace drills and tools.

107.280 MULTI-MACHINE OPERATOR (MACHINING)

GRADE 6

Perform a broad range of machining operations such as milling, profiling, drilling, bench or turret lathe operations, boring and surface grinding on a wide variety of large, expensive castings and parts, where setups, tooling, speeds and feeds are usually provided by others. Install tools as required on more complicated setups, with final adjustments made by others. Maintain setups, replace dull tools, change over and adjust. Check work, using various instruments.

107.621 UTILITY OPERATOR

GRADE 9

Carries or handtrucks supplies to work stations. Cleans equipment. Inserts parts into partial assembly, during various stages of assembly to complete product. Marks or tags identification on parts. Observes operation and notifies equipment operator of malfunctions. Starts machines or equipment to begin process. Tends equipment to facilitate process. Washes machines, equipment, vehicles and products. Performs simple machining operations to prepare material for subsequent operations.

COMPUTER NUMERIC CONTROLLED (CNC) OPERATIONS (108)**108.615 CNC MACHINING CENTER OPERATOR I****GRADE 9**

First of three levels of CNC machining center operator. The job typically requires the ability to follow written instructions and read blueprint specifications, or equivalent. Operates and adjusts semi-automatic or automatic numerically controlled machine tools to perform standard and repetitive sequences of operations where programs are provided and setups are often made and maintained by others. Requires knowledge of operations include drilling, boring and milling, turning, etc., employing recognized tooling and procedures and where tolerances are close, but not difficult to maintain. Checks parts for conformance to specifications.

108.546 CNC MACHINING CENTER OPERATOR II**GRADE 6**

Second of three levels of CNC machining center operator. The job typically requires knowledge of machining techniques and methods and familiarity with computer numerically controlled machine tool operating procedures, plus the ability to follow written instructions and read blueprint specifications and 2+ years of experience, or equivalent. Sets up, adjusts and checks out programming, and operates numerically controlled machine tools to perform a series of progressive machining operations on repetitive work to close and exacting tolerances and finish specifications requiring considerable skill. Works from programming instructions, operational data and machine setup instructions defining and coding tool arrangements, material clamping methods, machine calibrations and console settings, for operations such as bore, mill, drill, face, thread and occasional profiling and contouring. Checks parts for conformance to specifications. Operators may run more than one unit simultaneously.

108.545 CNC MACHINING CENTER OPERATOR III**GRADE 5**

Third of three levels of CNC machining center operator. The job typically requires 5+ years of combined formal training and experience, or equivalent. Requires a broad knowledge of machining techniques and familiarity with computer numerically controlled machine tool operating procedures. Setups involve familiarity with and understanding of program formats involving combinations of operations such as profile and contour milling, boring, recessing, turning, drilling, threading, etc., to the capacity of the machine and control factor. Performs advanced setup operations, adjusts and checks out programming and operates numerically controlled machine tools to perform a complex series of progressive machining operations on a diversified line of work to close and exacting tolerances and finish specifications requiring a high degree of skill. May set up machines for and instruct other operators. Checks parts for conformance to specifications. Operators may run more than one unit simultaneously.

108.616 GRINDING MACHINE SETUP AND OPERATOR (CNC)**GRADE 5**

Sets up and operates a broad range of grinders to grind a wide variety of custom and standard parts having a number of steps, shoulders, recesses, and tapers to extremely close tolerances and high degree of finish. Prepares a process plan for grinding sequence. Selects work holding methods, machine accessories, wheels, feeds and speeds and finish grinding allowances. Checks and arranges for availability of materials and fixtures and arrange work place for proper operation. Responsible for maintaining quality and production.

108.620 LASER SETUP AND OPERATOR (CNC)**GRADE 5**

Sets up and operates computer numerically controlled (CNC) laser machines to cut metallic and nonmetallic workpieces according to specifications and tooling instructions, applying knowledge of laser cutting methods. Plans job setups, reviews process sheet and calls up program to determine requirements to perform a variety of close tolerance laser cutting operations as well as matching the laser process to the material. Inputs required program instructions and make minor modifications as required.

108.553 LEAD MACHINING CENTER (CNC)**GRADE 4**

As a setter and group lead, plan job setups, review process sheet and call up program to determine tools required to perform a wide variety of very close tolerance drilling, tapping and milling operations. Insert tools in tool holders or install preset tools in machine. Adjust tool travel distance. Input required program instructions and make minor modifications as required. Monitor machine operations, inspect machined parts to ensure job specifications are maintained. Replace dull tools as necessary.

108.617 MILLING MACHINING SETUP AND OPERATOR (CNC)**GRADE 5**

Sets up and operates multiaxis numerical-control milling machine to mill surfaces of metallic and nonmetallic workpieces according to specifications and tooling instructions, applying knowledge of machining methods. Plans job setups, reviews process sheet and calls up program to determine tools required to perform a wide variety of very close tolerance milling operations. Inserts tools in tool holders or install preset tools in machine. Adjusts tool travel distance. Inputs required program instructions and makes minor modifications as required. Monitors machine operations, inspects machined parts to ensure job specifications are maintained. Replaces dull tools as necessary. May have to call up a program from a CAM system or perform manual data input.

108.618 TURNING CENTER SETUP AND OPERATOR (CNC)**GRADE 5**

Sets up and operates numerical-control turning center to turn metallic and nonmetallic workpieces according to specifications and tooling instructions, applying knowledge of machining methods. Plans difficult setups and performs operations, including multi-cut tooling, on fairly complicated work, to close tolerances and relationships to stepped diameters, shoulders, recesses and formed sections for standardized products. Determines operation sequence and details. Select tools, feeds and speeds, set box tools, grind ordinary form tools. May have to call up a program from a CAM system or perform manual data input.

108.619 WIRE EDM SETUP AND OPERATOR (CNC)**GRADE 4**

Sets up and operates one or more wire electrical-discharge machines to cut metal workpieces to specifications. Mounts, installs, aligns, and secures wire, tools, attachments, fixtures, and workpiece on machine. Calculates and sets machine controls to position tools, synchronize tape and tool, or regulate cutting depth feed, or coolant flow. Loads control media, such as tape, card, or disk, in machine controller or enters commands to retrieve programmed instructions. Starts automatic operation of numerical control machine to machine parts or test setup, workpiece dimensions, or programming.

MAINTENANCE (109)**109.189 AUTOMOTIVE MECHANIC****GRADE 5**

Repair gasoline or diesel powered automobiles and trucks. Disassemble and overhaul engines, transmissions, clutches, rear ends and other assemblies. Replace worn or broken parts, grind valves, adjust brakes, tighten body bolts and align wheels. Lubricate vehicles and perform other duties in connection with maintenance and operation of motor vehicles, except finished body and fender work, re-upholstery and painting.

109.611 BUILDING/GROUNDS MAINTENANCE MECHANIC I**GRADE 6**

First level of building/grounds maintenance mechanic. The job typically requires a technical school degree, or equivalent. Work involves planning and performing work relating to repair of buildings, mechanical and/or electrical equipment; installing and aligning new equipment; and repairing building, floors, stairs, etc. Works independently on projects of limited complexity or as an assistant to more experienced maintenance staff on more difficult projects. This is not a janitor job even though janitor duties may be performed a minor amount of the time.

109.610 BUILDING/GROUNDS MAINTENANCE MECHANIC II**GRADE 2**

Experienced level of building/grounds maintenance. The job typically requires a technical degree, or equivalent, and 3+ years of experience. Work involves planning and performing work relating to repair of buildings, mechanical and/or electrical equipment; installing and aligning new equipment; and repairing building, floors, stairs, etc. Works independently on projects of greater complexity and may provide direction to an assistant or to less experienced maintenance staff. This is not a janitor job even though janitor duties may be performed a minor amount of the time.

109.027 CARPENTER**GRADE 4**

Lay out, construct and repair a wide variety of woodwork requiring close fitting, skillful joining and fine finishes involving accuracy and difficult work on all types of woodworking machinery. Select materials and make estimates. May plan and lay out work for several lower class carpenters.

109.060 ELECTRICIAN I (ASSISTANT)**GRADE 6**

First of three levels of electrician work. The job typically requires less than one year of formal technical training, or equivalent. Under close supervision assists others in installing and maintaining electrical equipment such as large control panels, switchboards, junction boxes, switches, motors, etc. Tests circuits with testing equipment and reports readings for diagnosis by others. Under direction, performs wiring of ordinary light circuits; setting circuit breakers; repairing switches, small motors and simple starting and control devices; replacing lights and fuses; and minor trouble shooting. Uses hand and power tools. May work from simple wiring diagrams.

109.058 ELECTRICIAN II (JOURNEY)

GRADE 4

Second of three levels of electrician. The job typically requires completion of two years of formal technical school training and 3+ years of job experience, or equivalent, and successful completion of the board exam for licensing as a journey-level maintenance electrician. Plans and performs jobs of installing and maintaining a variety of electrical equipment such as control panels, switchboards, junction boxes, switches, etc. Connects and disconnects electric powered machines; repairs motors and generators; replaces fuses and sets circuit breakers on high and low tension circuits. Diagnoses electrical trouble. Uses hand and power tools. Works from wiring diagrams. Planning may involve determination of method and sequence of operation and selection of materials to be used. Works independently and may provide direction to an assistant or to less experienced electricians.

109.056 ELECTRICIAN III (MASTER)

GRADE 2

Third of three levels of electrician. The job typically requires completion of two years of formal technical school training and 5+ years of job experience, or equivalent, and successful completion of the board exam for licensing as a master electrician. Approves wiring plans for new installations. Plans and performs jobs of installing and maintaining a variety of electrical equipment such as control panels, switchboards, junction boxes, switches, etc. Connects and disconnects electric powered machines; repairs motors and generators; replaces fuses and sets circuit breakers on high and low tension circuits. Diagnoses electrical trouble. Uses hand and power tools. Works from wiring diagrams. Planning may involve determination of method and sequence of operation and selection of materials to be used, establishment of work procedures. Works independently and may provide direction to assistants or to less experienced electricians.

109.411 INSTRUMENT REPAIRER

GRADE 4

Repair, modify, calibrate, adjust and troubleshoot, mechanically and electrically, a wide variety of high accuracy general instruments, which involves solving problems with assistance only on rare occasions. Determine extent of repairs and estimate costs. Notify supervisor of costs which exceed limits specified on work orders. Select and adapt test equipment and setup and calibrating procedures as required. Plan own work considering availability of equipment. Conduct tests and compute average accuracy's as necessary to certify that instruments operate within specified limits.

109.165 MACHINE MAINTENANCE MECHANIC I

GRADE 3

First level of three levels of maintenance mechanic. The job typically requires 2 years of technical training and less than 1 year of experience, or equivalent. With readily available technical guidance, keeps plant machinery and mechanical equipment in good repair. Examines machines to diagnose trouble, dismantles machines, replaces defective parts, reassembles machines and makes necessary adjustments to ensure efficient operation. At this level much of the time is spent assisting more experienced maintenance mechanics.

109.164 MACHINE MAINTENANCE MECHANIC II

GRADE 2

Second of three levels of maintenance mechanic; experienced level. The job typically requires 2 years of technical training and 3+ years of related experience, or equivalent. Under limited supervision and with minimal technical guidance, keeps plant machinery and mechanical equipment in good repair. Examines machines to diagnose trouble, dismantles machines, replaces defective parts, reassembles machines and makes necessary adjustments to ensure efficient operation. May involve scraping of ways. May occasionally make replacement parts. Incumbents at this level perform intermediate troubleshooting, work with limited technical guidance and may provide work training to less experienced maintenance staff.

109.624 MACHINE MAINTENANCE MECHANIC III

GRADE 1

Third of three levels of maintenance mechanic; advanced level. The job typically requires 2 years of technical training and 5+ years of related work experience, or equivalent. Specific skills include mechanics, pneumatics, hydraulics, machining, welding and electrical. Duties include installation, maintenance and repair of production or processing equipment. Incumbents may fabricate machine guards, install or repair conveyers, replace motors, tear down or replace pumps, maintain fluid collection or distribution equipment or repair electro-mechanical equipment. Incumbents at this level perform advanced troubleshooting, work with general supervision and may provide work training to less experienced maintenance staff.

109.130 MAINTENANCE HELPER

GRADE 9

Perform routine duties to assist trades people and technicians in the performance of their duties. Move material, tools and supplies, position work, hold ladders, clean up debris after completion of jobs and clean machines.

109.128 MAINTENANCE HELPER

GRADE 7

Perform routine repairs and preventive maintenance activity as directed. Assist tradespeople by performing a variety of duties as directed, such as oiling machines, following prescribed schedule, obtaining tools, materials or supplies, assisting with adjustments, replacing fuses and light bulbs, positioning work and holding ladders.

109.604 MAINTENANCE PAINTER

GRADE 6

Lay out and plan work. Select and mix materials to meet specifications. Clean and prepare surfaces. Apply high grade interior and exterior finishes and special surfacing by brush and spray painting.

109.496 MAINTENANCE WELDER

GRADE 3

Perform general maintenance welding projects on machines, conveyors, air shafts and other equipment, using arc, gas or automatic welding equipment and applying trade practices and techniques with little or no direction. May direct and lay out work for one or two lower graded welders.

109.191 MILLWRIGHT

GRADE 3

Install and move a wide variety of large equipment, requiring accuracy and care to align and balance, involving difficult or unusual rigging, where only general methods are available. Dismantle and reassemble units as circumstances dictate. Prepare machine foundations and select or specify shafts, hangers, pulleys and belts. Install, repair and maintain counter and line shafts and power drives. May instruct and direct one or two lower graded millwrights.

109.591 OILER

GRADE 7

Lubricate a variety of equipment, such as machines, motors, conveyors, pumps and trucks, following detailed instructions or definite routines. Fill oil cups, wells or grease fittings with prescribed lubricants, using oil can or grease gun.

METAL PROCESSING (110)**110.227 DIE CASTING MACHINE OPERATOR****GRADE 7**

Operate die casting equipment to produce a variety of castings, following established methods and procedures. Assist in setting dies or make minor adjustments subject to approval, if required. Maintain quality of castings and hold temperature of die and metal within allowable limits.

110.260 HEAT TREATER**GRADE 8**

Load and unload heat treating furnace to heat, treat, anneal, temper, carburize, harden or normalize materials. Set furnace temperatures and cycle time under direction. Check completed work for hardness.

110.482 HEAT TREATER**GRADE 6**

Perform hardening, drawing, carburizing and normalizing on standard products following standard procedures. Operate gas, electric and controlled atmosphere furnaces. Set temperatures, quenching, medium and cycle times as specified.

110.480 HEAT TREATER**GRADE 4**

Perform a range of operations, such as hardening, drawing, carburizing and normalizing a wide variety of production parts and tool and die parts, requiring care in heating and quenching to avoid distortion and cracking. Operate gas, electric and controlled atmosphere furnaces. Select temperature, quenching medium and cycle times when not specified. Check hardness and vary temperatures, quenching medium and cycle times to suit varying conditions.

PLASTIC (112)**112.245 EXTRUDER OPERATOR****GRADE 7**

Change over, adjust and operate extruder line. Install screens and dies, where final settings are made by others. Check extruded material for dimension, width and defects and adjust speed and temperatures of extruder and takeoff rolls. Check pellet feeding equipment to keep system full. Make minor mechanical repairs. Remove and wrap finished rolls.

112.244 EXTRUDER OPERATOR**GRADE 5**

Set up and operate extruder line, using materials in pellets or sheets to produce thermoplastic sheets meeting specifications, dimensions and specified weight. Install or change dies, screens, line up takeoffs, slitter, trim scrap collector or grinder, sheet winder and pellet grinder and adjust dies, speed and temperature for sheet uniformity and quality. Visually check sheets for defects, check dimensions with micrometers and rule and make necessary adjustments. Arrange raw material feeding system and containers. Remove and wrap finished tools. May instruct and train group of lower graded operators in details of equipment operation. Maintain records of material use and production.

112.243 EXTRUDER OPERATOR**GRADE 4**

Set up and operate extruder line, using materials in pellets or sheets to produce thermoplastic sheets meeting specifications, dimensions and specified weight. Install or change dies, screens, line up takeoffs, slitter, trim scrap collector or grinder, sheet winder and pellet grinder and adjust dies, speed and temperature for sheet uniformity and quality. Visually check sheets for defects, check dimensions with micrometers and rule and make necessary adjustments. Arrange raw material feeding system and containers. Perform disassembly and mechanical maintenance. Remove and wrap finished tools. May instruct and train group of lower graded operators in details of equipment operation. Maintain records of material use and production.

112.256 FORMING MACHINE OPERATOR (PLASTIC)**GRADE 6**

Setup and operate thermoforming machines. Adjust and set control cycles to produce quality parts. Adjust machine settings, taking into consideration characteristics of various grades and types of plastic. Troubleshoot equipment and make minor mechanical repairs as necessary.

112.255 FORMING MACHINE OPERATOR (PLASTIC)**GRADE 4**

Set up and operate any type of thermoforming machines. Install thermoforming tooling and accessory equipment. Adjust and set control cycles to produce quality parts from a wide variety of thermoforming materials. Mount die and cooling block and clamp frame in forming press and shearing die in cutting press. Adjust machine settings, taking into consideration characteristics of various grades and types of plastics. Troubleshoot equipment and make mechanical repairs, other than complete overhauls and parts improvising, as necessary.

112.159 INJECTION MACHINE LEAD

GRADE 4

Responsible for group of operators performing plastic molding machine operations to produce a wide variety of small and lightweight parts to close tolerances, following established procedures. Set up machines and work area. Obtain mold box, trim fixtures or side cutters, inspection gauges and material instructions. Load hoppers, purge machine, start up job and arrange for scrap disposition. Direct and instruct operators in operation and production requirements. Under direction of supervisor, make mold setups when scheduled. Furnish operator relief.

112.590 INJECTION MACHINE OPERATOR

GRADE 8

Change over, adjust and operate automatic injection molding machine, where setups are made by others. Maintain press times, temperatures and pressures specified. Prepare molds and heat preforms, place inserts and weigh molding abrasive and nonabrasive thermoplastic material to produce a wide variety of close tolerance parts in large quantities, in conformance to specifications and detailed instructions.

112.541 INJECTION MACHINE SETTER

GRADE 5

Perform duties to set up manual, semiautomatic and fully automatic injection molding machines. Work from schedules and instructions. Position and clamp mold into press bed. Connect water lines, adjust and regulate heat, set clamp height and connect electrical lines and hydraulic slides, making required adjustments. Attach and adjust ejector systems. Set cycle for machine and run sample piece part for simple production jobs. Examine for defects and readjust controls as necessary. Ensure that correct raw materials are in machine hoppers. Load hoppers during production as necessary. Notify supervisor of unusual equipment or operating problems. Troubleshoot equipment and make simple mechanical repairs as necessary.

112.539 MOLDING PRESS OPERATOR (RUBBER)

GRADE 6

Set up mold in press, following verbal or written instructions. Load mold cavities with rubber blanks in proper position. Work with another operator as required. Operate a group of presses, depending on load and cure cycles. Inspect own work to ensure product quality.

PRINTING AND PAPER (113)**113.041 DIE CUTTER (AUTOMATIC)****GRADE 5**

Set up, program and operate automatic machines to cut sheets of paper to specified size and shape. Position, align and lock required dies into machine ram and adjust stroke depth. Separate desired cuts from scrap. Adjust machine during run to maintain tolerances. Make minor machine repairs. Stack on skids and move material to designated areas.

113.040 DIE CUTTER OPERATOR**GRADE 8**

Load and operate machine to cut sheets of printed paper to specified size and shape. Stack and move material to designated areas.

113.589 PLATE MAKER**GRADE 4**

Transfer a wide variety of negative images onto a broad range of photosensitive plastic printing plates. Expose film and plate to artificial light for specified time. Process exposed plate from washing to remove foreign matter and mixing of necessary chemical solutions through drying and finishing operations. File plates for future use. Maintain and make minor repairs on equipment.

113.570 PRESS HELPER**GRADE 8**

Assist press operators to maintain the work flow and work quality on assigned press runs. Bring materials for press setups to press sites. Assist with setups as directed. Monitor jobs in process and notify Press Operator of material or press problems. Clean presses on job changes.

113.303 PRINTING PRESS OPERATOR (MISCELLANEOUS)**GRADE 8**

Change over, adjust and operate single color small offset or letterpress equipment to repetitively imprint similar items with flat or raised printing, working from orders.

113.302 PRINTING PRESS OPERATOR (MISCELLANEOUS)**GRADE 6**

Set up and operate single color small offset and letterpress equipment to imprint a wide variety of items with flat or raised printing. Disassemble, clean and reassemble machine for ink change or shift end, mount and remove plates, change slugs or remove and change chase. Make adjustments to operation as necessary. Add powder to raised print equipment. Make initial impression, check centering, inking, print and accuracy, correct press and remove type hair lines. Obtain correction or replacement of improperly made plates. Maintain quality during run, adjusting equipment as required. Perform parts replacement, repairs, lubrication and other minor maintenance. Request major maintenance. Set and operate cutter and plate making equipment as necessary.

113.309 PRINTING PRESS OPERATOR (MULTICOLOR OFFSET)

GRADE 6

Set up and operate large offset presses to produce single color items which require screening and use of halftone plates to obtain precise wet and dry impressions. Change plates to mechanisms for size and type of stock. Change ink colors as needed. Clean inking rollers with solvent, wipe and lubricate press parts and pack impression cylinder. Mix and obtain approval of own color inks. Load press with specified type, size and color of paper stock. Check dot clarity of proof under magnifier. Initially regulate ink volume and adjust press during run to prevent off level areas or poor offset. Bridge output when required by stock to avoid ink pickup or smearing. Perform preventive maintenance and make minor machine repairs.

113.307 PRINTING PRESS OPERATOR (MULTICOLOR OFFSET)

GRADE 4

Set up and operate large offset presses to produce a wide variety of complex multicolor items which require screening and use of halftone plates to obtain precise wet and dry impressions. Change plates to mechanisms for size and type of stock. Clean inking rollers with solvent, wipe and lubricate press parts and pack impression cylinder. Mix and obtain approval of own color inks. Load press with specified type, size and color of paper stock. Check dot clarity of proof under magnifier. Initially regulate ink volume and adjust press during run to prevent off level areas or poor offset. Bridge output when required by stock to avoid ink pickup or smearing. Perform preventive maintenance and make minor machine repairs.

113.571 PRINTING PRESS OPERATOR (MULTICOLOR WEB PRESS)

GRADE 3

Setup and monitor large, multi-color web press to run a variety of items of high quality registration and color requirements. Check jobs for proper color placement, paper flow, area temperature and humidity control and make needed adjustments. Trouble shoot and correct print and press problems. Direct the work of a second press operator and helper.

113.572 SECOND PRESS OPERATOR (MULTICOLOR WEB PRESS)

GRADE 5

Setup smaller multi-color web press and act as Press Operator as necessary to setup and monitor large, multi-color web press runs. Monitor jobs in process for required work quality and make press adjustments as needed. Lubricate and perform routine maintenance on press.

113.343 SHEETER OPERATOR

GRADE 6

Operate rotary blade cutting machine to cut rolls of paper into sheets. Work from specifications, schedules and instructions. Thread paper through feed rollers, aligning against guides. Adjust tension and synchronize timing and blades with feed to regulate length of cut. Start machine, checking size or accuracy of cut of pre-marked paper, and readjust machine to maintain required sheet dimensions. Report daily production.

SERVICE (114)**114.467 OFFICE JANITOR****GRADE 10**

General labor job. The job typically requires the ability to follow basic verbal and written instructions, such as the ability to read and follow label instructions on cleaning supplies. Job duties include sweeping floors, vacuuming carpeting, removing wastepaper and other refuse, and dusting furniture and fixtures. May also include performing routine light manual work in cleaning and sweeping offices, halls, restrooms, etc. Do not report plant maintenance staff unless office maintenance duties are secondary.

114.034 PLANT JANITOR/SANITATION**GRADE 8**

General labor job associated with plant or facility sanitation duties. The job typically requires the ability to follow basic verbal and written instructions, such as the ability to read and follow label instructions on cleaning supplies. Duties include cleaning walls, floors, equipment, or any other areas of the facility. Duties include disposing of waste, sanitation of facilities and equipment, maintenance of lighting, and other related facilities and grounds duties. Incumbents may assist maintenance mechanics with maintenance of equipment. Work may include moderate to heavy lifting. Do not report office maintenance staff.

114.116 SECURITY GUARD**GRADE 8**

Make regular watch rounds of premises outside of scheduled working hours, where frequency of trips and stations is prescribed. Check buildings, equipment and materials for leaks, fires, unauthorized individuals and other conditions. Ensure that all entrances and windows are secured, and that elevator and fire doors are closed. Make written report of all irregularities or unusual circumstances.

SHEET METAL (115)**115.250 FABRICATING MACHINE OPERATOR (SHEET METAL)**

GRADE 8

Change over, adjust and operate a variety of sheet metal working machines, following prescribed operation sequence and using furnished tools. Check work, using scales, square, template or sample, for conformance to fairly liberal tolerances.

115.248 FABRICATING MACHINE OPERATOR (SHEET METAL)

GRADE 6

Set up and operate a full range of sheet metal working machines to produce a wide variety of close tolerance products. Select operation sequences and tools when not prescribed. Check work, using scales, square, protractor, template and sample or by fitting to mating parts. Make machine adjustments.

115.422 FABRICATING MACHINE SETTER (SHEET METAL)

GRADE 5

Set up all types of sheet metal working machines. Select operation sequences. Lay out sheets for economical use of material, making bending and forming allowances. Improvise methods and tools for unusual operations. Check work to close tolerances. Make machine adjustments and minor repairs. Assign work to group according to individual abilities. Maintain quality and production standards for a group of lower graded persons.

115.512 LAYOUT WORKER (SHEET METAL)

GRADE 4

Plan and lay out a wide variety of close tolerance work. Ensure economical use of plates or sheets of expensive materials. Develop details and lay out work on sheet metal products where no standard methods or procedures exist, as with special products per customer orders or variations on standard products for special purposes. Perform experimental and development work as required.

115.600 PRESS BRAKE OPERATOR

GRADE 8

Change over and perform a normal variety of press brake operations, following established routines. Check work and make machine adjustments as required. Work from ordinary drawings, layouts, sketches or samples. Use dies and operation sequences as prescribed.

115.599 PRESS BRAKE OPERATOR

GRADE 6

Set up and operate press brake. Work from fairly complicated drawings, layouts, sketches and templates to close tolerances. Plan sequence of operations. Select dies and methods for a wide variety of unusual press brake operations.

115.295 PRESS BRAKE OPERATOR

GRADE 4

Perform a wide variety of press brake operations, usually on heavy steel plate, stainless steel or aluminum. Select multiple purpose and general purpose press brake dies. Set dies and stops and adjust ram for varying plate thicknesses. Improvise, build or recommend special purpose tooling to meet requirements and lay out location of holes, cutouts and bends, making allowances for welding and convenience in assembly if required. Plan sequence of multiple pass operations for series of bends and other fabricating operations on complicated sections. May direct lower level operators.

115.078 ROLL FORMER

GRADE 7

Operate roll formers on somewhat irregular shapes of varied gauge material. Adjust rolls for spring and various materials.

115.342 SHEAR OPERATOR

GRADE 8

Operate shear to cut a limited variety of lighter gauge material to length or width and make simple angle cuts to liberal tolerances. Change over and adjust gauges and stops.

115.340 SHEAR OPERATOR

GRADE 6

Shear a limited variety of parts to negligible tolerances. Make layouts of large sections and plan and align for economical use of material, which usually consists of light to average weights. Make allowances for bending and forming. Set gauges and stops. Remove, sharpen and replace shear blades.

115.339 SHEAR OPERATOR

GRADE 5

Shear a wide variety of parts to close tolerances of length, width, parallelism and angle cuts. Make difficult layouts of large sections and plan and align for economical use of material, which usually consists of average to heavy weight plate. Make allowances for bending and forming. Set gauges and stops. Remove, sharpen and replace shear blades. Instruct and direct one or two lower graded operators.

115.527 SHEET METAL WORKER

GRADE 7

Make a limited variety of simple, light gauge sheet metal products of similar design. Set up and operate a narrow range of power shears and bending, forming or other sheet metal equipment. Work from ordinary drawings to meet forming and bending allowances and other detail requirements, in accordance with standard practice.

115.525 SHEET METAL WORKER

GRADE 5

Construct large sheet metal units and products to customer specifications. Layout work for economical use of materials in accordance with standard practices. Setup and operate all types of sheet metal working machinery.

115.524 SHEET METAL WORKER

GRADE 4

Construct a wide variety of large sheet metal units and products of complex design and special parts, to customer specifications. Work from complex drawings, layouts, samples or verbal instructions concerning general requirements to plan methods of construction, making bending and forming allowances. Lay out work for economical use of material in accordance with standard practices. Set up and operate all types of sheet metal working machinery. Assemble parts and complete products. Perform hand operations. Assist and instruct lower class operators.

115.565 SLITTER OPERATOR

GRADE 7

Changeover and operate slitting machine to cut sheet metal into strips of specified length. Measure and reposition knife blades. Monitor operation for proper material flow and take up. Check strip widths for specified dimension. Replace dull knives and sheet metal rolls as necessary.

SHIPPING, RECEIVING, STORES AND MATERIAL HANDLING (116)**116.222 CRANE OPERATOR****GRADE 7**

Transport material, parts or equipment as directed. Pick up loads, manipulate and position, load and unload cars and stack material, using skill and care. Detect faulty hitching or slipping loads.

116.054 DRIVER I**GRADE 7**

Drives a motor vehicle (automobile, utility van, pickup, light truck, etc.) up to 26,000 pounds gross vehicle weight (GVW) on the public highways to transport non-hazardous materials or equipment. The job typically requires a valid driver's license, but not a commercial driver's license (CDL). Typically loads or unloads the vehicle. Convert pay into an average hourly rate if pay is based on mileage or has a mileage component. Does not include bus drivers.

116.124 FORK LIFT DRIVER (POWER)**GRADE 8**

General warehouse labor job. The job typically requires the ability to follow basic written and verbal instructions, such as bills of materials and shipping documents, or equivalent. With readily available supervision, workers operate a gas or electric powered forklift truck to move, stack, load, or unload materials in and about plant, warehouse, staging area, etc. Work may include using banding and shrink wrap machines. Workers may use bar code readers, computer terminals or other electronic devices to track product as it is moved.

116.032 INVENTORY CONTROL CLERK /CYCLE COUNTER**GRADE 9**

First level of inventory clerical work. The job typically requires math and problem solving skills equivalent to a high school diploma and no experience, or equivalent. Duties include counting inventory at various locations within the organization and matching results with inventory records. Incumbents may attempt to resolve differences by locating product or isolating errors in records. Incumbents use computer terminals or PC's to record data. Incumbents follow established procedures and have readily available supervision.

116.580 LABELER**GRADE 8**

Operate labeling machine or hand label units. Make adjustments, clear jams and change over equipment.

116.122 LEAD MATERIAL HANDLER**GRADE 7**

Lead a group seldom over 10 persons in unloading, loading moving and storing a variety of products. Assist with difficult loading or unloading operations. Operate a variety of material handling equipment. Check identification, quantities and location of materials to ensure fulfillment of routing, delivery tickets or orders. Inspect possible damage to material during loading or unloading operations. Assign and check work. Report on group activities. Perform a variety of duties within a group to ensure work flow.

116.121 LEAD MATERIAL HANDLER

GRADE 6

Lead a group of up to 25 persons unloading, loading moving and storing a variety of products. Assist with difficult loading or unloading operations. Operate a variety of material handling equipment. Check identification, quantities and location of materials to ensure fulfillment of routing, delivery tickets or orders. Inspect possible damage to material during loading or unloading operations. Assign and check work. Report on group activities. Perform a variety of duties within a group to ensure work flow.

116.362 LEAD PACKER

GRADE 5

Plan, prepare and pack large and heavy products or fragile apparatus for shipment. Sketch or construct nonstandard boxes, crates or skids for domestic or foreign shipments. Select materials for packing or protection of product and method of bracing or blocking to prevent shifting while in transit. Check against packing list for inclusion of all components of completed units. Plan and lay out work for up to ten lower graded packers.

116.406 LEAD RECEIVER

GRADE 6

Check, count, weigh or weigh count a wide variety of incoming parts, materials and supplies against purchase orders or packing lists for proper shipment, shortages, damage while in transit, broken packages and obvious defects, following standard procedures. Make out receiving reports detailing errors, shortages or damages. Move or expedite material to proper department or place in temporary storage. Operate crane, hoist or power truck in unloading, moving or storing materials as required. Plan and lay out work for lower graded helpers or materials handlers.

116.550 LEAD SHIPPER-RECEIVER

GRADE 5

Count, weigh and check a wide variety of incoming materials and supplies. Make out receiving reports detailing shortages and damaged materials. Operate crane, hoist or power truck in unloading, moving or storing materials. Assemble orders for shipment. Count, weigh and check against shipping report shortages. Select shipping containers for material not packed. Specify types of crates or skids for bulky material. Count and pack a variety of small and medium parts or products in containers. Check against packing lists for inclusion of all units. Arrange for movement to work or storage areas. Select shipping method, routing and carrier when not specified by customer. Arrange for pickup by carrier. Responsible for instructing and directing a group of lower rated employees.

116.464 LEAD STOREKEEPER

GRADE 6

Responsible in general for a fairly large stock room, in accordance with standard practices. Check incoming material and supplies and report shortages or damaged material. Assign bin locations or other locations for large or bulky materials or products. Ensure that material is piled or stacked safely. Maintain stock records, post receipts and withdrawals and report shortages. Check requisitions and orders filled. Direct inventory taking. Plan, lay out work and instruct up to 10 assistants.

116.123 MATERIAL HANDLER (FORK LIFT DRIVER)**GRADE 7**

Unload, move and store a variety of materials, parts or products. Unload incoming materials, check identification, report shortages or damaged materials, move to storage area. Move materials between departments, following routing, delivery tickets or orders. Fill orders from storage areas and warehouse stock and deliver to designated department. Operate power fork lift truck to move materials and stack loaded pallets. Operate walking crane or hoist in unloading and storing materials, as required.

116.125 MATERIAL HANDLER AND/OR WAREHOUSE LABORER**GRADE 9**

General warehouse labor job. The job typically requires the ability to read shipping documents, or equivalent. Working under close supervision, incumbents load and unload trucks and move material within the warehouse or production facility. Work includes pulling orders together and assembling them for shipment to customers or distribution centers. Work may include using banding and shrink wrap machines. Work may include gathering or distributing product or materials within the production area. Some packaging may be required. Incumbents will typically use pallet jacks and may occasionally use a riding forklift. Workers may use bar code readers, computer terminals or other electronic devices to track product. Do not report workers with fork truck driving as a primary focus or workers with greater emphasis on shipping and receiving clerical/administrative activities.

116.126 MATERIAL HANDLER**GRADE 10**

Manually unload materials from incoming trucks, move, store and stack materials and deliver materials, following prescribed practice or instructions as a crew member.

116.603 PACKER**GRADE 10**

General warehouse or production labor job. The job typically requires the ability to read production or shipping documents and no previous experience, or equivalent. Primary duty is to place finished products in containers (cases) for shipping or storage. The specific operations are dependent upon the type, size, and number of units to be packed, the type of container employed and the method of shipment. Work may involve one or more of the following: knowledge of various items of stock in order to verify content selection of appropriate type and size of container; using appropriate packing material to prevent breakage or damage; closing and sealing container; and applying labels or entering identifying data on container. Workers may use bar code readers, computer terminals or other electronic devices to track product.

116.365 PACKER**GRADE 8**

Pack a wide variety of parts or products in standard boxes, crates or other containers and from specified details concerning excelsior, pads and other packing materials. Block to eliminate shifting of products while in transit.

116.363 PACKER**GRADE 6**

Plan, prepare and pack large and heavy products or fragile apparatus for shipment. Sketch or construct nonstandard boxes, crates or skids for domestic or foreign shipments. Select materials for packing or protection of product and method of bracing or blocking to prevent shifting while in transit. Check against packing list for inclusion of all components of completed units.

116.574 PACKER (AUTOMATED LINE)

GRADE 10

Operate automated packing equipment as directed. Load light weight product, change tape, adhesive, ink or labels as needed. Add documents or inserts as directed. Unload packed boxes, palletize and move to staging area.

116.573 PACKER (AUTOMATED LINE)

GRADE 9

Operate automated packing equipment following routine procedures. Load product, change tape, adhesive, ink or labels as needed, add documents and inserts as directed. Unload packed boxes, palletize and move to staging area.

116.408 RECEIVER

GRADE 8

Check, count, weigh or weigh count a wide variety of incoming parts, materials and supplies against purchase orders or packing lists for proper shipment, shortages, damage while in transit, broken packages and obvious defects, following standard procedures. Make out receiving reports detailing errors, shortages or damages. Move or expedite material to proper department or place in temporary storage. Operate crane, hoist or power truck in unloading, moving or storing materials as required.

116.607 SHIPPER

GRADE 8

Assemble orders, check against shipping or customer orders, report shortages and follow up to locate items or incomplete orders. Make out bills of lading, following standard procedures. Plan transfer of products to shipping dock, loading cars and trucks. Specify method of crating, boxing or skidding of large, heavy or bulky products. Route shipments, involving a wide variety of classifications and requiring thorough knowledge of freight rates, classifications, interstate commerce laws and regulations for most economical transportation. Arrange for carrier pickups.

116.606 SHIPPER

GRADE 6

Assemble orders, check against shipping or customer orders, report shortages and follow up to locate items or incomplete orders. Make out bills of lading, following standard procedures. Plan transfer of products to shipping dock, loading cars and trucks. Specify method of crating, boxing or skidding of large, heavy or bulky products. Route shipments, involving a wide variety of classifications and requiring thorough knowledge of freight rates, classifications, interstate commerce laws and regulations for most economical transportation. Arrange for carrier pickups. Responsible for instructing and directing a group of lower graded loaders and packers.

116.608 SHIPPING AND/OR RECEIVING CLERK

GRADE 7

Warehouse clerical/administrative job. The job typically requires reading, math and communication skills equivalent to a high school education and one or more years of related experience, or equivalent. Primary duties are the following: to ship goods from the establishment; prepare records of goods shipped; make up bills of lading; post weight and shipping charges; keep files of shipping records; receive incoming shipments of merchandise or other materials; verify correctness of shipments against bills of lading, invoices, etc.; keep records of goods received; report damaged goods and shortages; route goods to the proper departments. Workers may use bar code readers, computer terminals or other electronic devices. Work may include material handling.

116.031 STOCK CHECKER/SELECTOR/PICKER**GRADE 8**

Assemble materials or product orders, count and weigh and move or direct movement to designated floor locations. Record time, date, method and quantity of shipments. Compare lot numbers of cases, crates or packages with numbers on shipping orders, memos or bills of lading as material is loaded into freight cars or trucks. Report shortages or errors. Assist in selecting storage places and taking inventory. Operate power lift truck.

116.466 STOREKEEPER**GRADE 8**

Check incoming material and supplies and report shortages or damaged materials for small stock room. Ensure material stored safely. Check requisitions and orders filled. Take inventory.

TOOLING (117)**117.477 LEAD TOOL CRIB ATTENDANT****GRADE 6**

Responsible in general for large tool crib or departmental tool cribs, through assistants. Maintain inventory record of tools and supplies, issuing purchase requisitions when stock is low. Count, weigh or check incoming tools and supplies and select storage spaces. Investigate excessive consumption of supplies, damages, loss of tools and tool repair costs. Follow up on repairs to tools, jigs, fixtures and gauges. Lay out work for tool grinders and tool crib attendants, providing instruction as required.

117.184 LEAD TOOL, DIE AND GAUGE MAKER**GRADE 1**

Design, develop and construct highly intricate tools, dies, jigs, fixtures and gauges, where accurate relationships, fitting and interchangeability of parts require maintenance of extremely close tolerances. Devise special mechanisms to meet or obtain specific requirements. Determine metal flow in dies, select allowances, perform difficult development work, make tool tryouts and diagnose and correct problems. Advise and direct activities of one or two lower graded tool makers.

117.278 MACHINE TOOL OPERATOR I**GRADE 6**

First of three levels of machine tool operator. The job typically requires the ability to follow written instructions and read blueprint specifications, or equivalent. Under close supervision, operates alternately more than one type of production machine tool such as grinders, milling machines, drill presses, lathes, etc., on routine and repetitive operations. Set-ups are usually made by others. Speeds, feeds and tooling are prescribed. Machines may have numeric controls. Does not include employees engaged primarily to operate one classification of machine tool surveyed separately.

117.277 MACHINE TOOL OPERATOR II**GRADE 5**

Second of three levels of machine tool operator. The job typically requires the ability to follow written instructions and read blueprint specifications and less than 2 years of experience, or equivalent. With readily available supervision, sets up and operates alternately more than one type of production machine tool such as grinders, millers, drill presses, lathes, etc., on a limited range of production work, involving close tolerances and set-ups which are exacting but not usually highly involved or difficult. Sets up machines where speeds, feeds, tooling and operation sequence are ordinarily prescribed. Machines may have numeric controls. Does not include employees engaged primarily to operate one classification of machine tool surveyed separately.

117.275 MACHINE TOOL OPERATOR III**GRADE 3**

Third of three levels of machine tool operator. The job typically requires the ability to follow written instructions and read blueprint specifications and 2+ years of experience, or equivalent. Under limited supervision, sets up and operates alternately more than one type of production machine tool such as grinders, millers, drill presses, lathes, etc., on complicated production work involving difficult operations, close tolerances, and difficult set-ups of parts of irregular shapes. Either determines feeds, speeds, tooling and operation sequence for considerable range of difficult operations or sets up pursuant to feeds, etc., prescribed in drawings or lay-outs. Machines may have numeric controls. Does not include employees engaged primarily to operate one classification of machine tool surveyed separately.

117.175 MODEL MAKER

GRADE 3

Develop and construct a wide variety of adapted or modified complicated equipment, apparatus, mechanisms or attachments from engineering drawings. Produce workable parts, prototypes or models, exercising ingenuity and a keen sense of proportion. Rectify problems and suggest means of overcoming various obstacles. Plan and perform difficult machine tool, fitting and assembly operations. Make necessary tools, jigs and fixtures incidental to work.

117.174 MODEL MAKER

GRADE 2

Develop and construct a wide variety of adapted or modified complicated equipment, apparatus, mechanisms or attachments from rough sketches or oral instructions. Produce workable parts, prototypes or models, exercising ingenuity and a keen sense of proportion. Rectify problems and suggest means of overcoming various obstacles. Plan and perform difficult machine tool, fitting and assembly operations. Make necessary tools, jigs and fixtures incidental to work.

117.173 MODEL MAKER

GRADE 1

Design and construct a wide variety of product models, complicated equipment, apparatus or mechanisms requiring visualization of completed products and a high degree of ingenuity and sense of proportion. Work from tentative design concepts provided by engineers. Work from drawings, layouts, sketches, tentative designs, schematics, verbal instructions or statement of requirements. Plan methods of construction, operation sequences and mechanical details. Select materials when not specified. Perform extremely difficult and unusual machining operations, improvise methods and tooling and make a variety of calculations involving the use of handbook formulas. Fit and assemble prototypes. Make trial test. Diagnose and resolve problems and suggest means of overcoming difficulties and avoiding manufacturing problems.

117.179 MOLD MAKER

GRADE 2

Design, develop, construct, modify and repair molds, jigs and fixtures, where accurate relationships and fitting of parts require maintenance of extremely close tolerances. Devise mechanisms to meet special requirements. Analyze mold modifications to meet customer or production needs, including original designs and ideas to be installed in molds. Plan repair procedures and select or recommend special materials. Develop shrinkage and temperature allowances for very delicate mechanisms to function and maintain relative position between different sections and halves of molds under high temperature molding conditions. Direct the activities of one or two lower graded coworkers as assigned.

117.613 MOLD MAKER HELPER

GRADE 9

Prepares mold components, mold base and inserts for the mold maker. Performs inventory on purchased mold components and facilitates stock acquisition for mold components. Performs various machining operations under the direction of a lead mold maker that may involve milling, drilling, turning and grinding.

117.614 MOLD POLISHER, FINISHER**GRADE 6**

Shapes and smooths metal surfaces to finish mold, using hand tools. Removes burrs and smooths contoured surfaces with powered hand grinder. Positions and hammers specified hand tool against mold surface to make sharper impression. Verifies contour of impression with templates. Applies blue pigment to mold surfaces, and presses mold halves together manually to locate high spots. Inserts preformed metal tabs into slots in mold, verified height of each insert with preset dial indicator, and hammers mold metal around inserts with pneumatic hammer to secure them. Performs other hand scraping, sanding, and brushing tasks, using hand tools, to shape and smooth mold.

117.022 TOOL CRIB ATTENDANT**GRADE 10**

Issue tools, dies, jigs and fixtures as requested. Check returned items for obvious damage or necessary repair or sharpening. Make record of withdrawal. Issue shop supplies. Notify supervisor of low tool or supply stocks.

117.479 TOOL CRIB ATTENDANT**GRADE 8**

Responsible in general for small tool crib. Issue tools, dies, jigs and fixtures on request or according to instructions, drawings, operation sheets and tool lists. Check for obvious damages and necessary repairs or sharpening. Make record of withdrawals and receipts through card or check system. Issue supplies, maintain tool and supply stocks and issue purchase requisitions when stock is low. Select storage spaces. Grind drills and perform ordinary milling operations on cutters, taps and reamers.

117.187 TOOL AND DIE MAKER I**GRADE 4**

First of three levels of tool and die maker, sometimes called apprentice. The job typically requires trade school and experience of less than 1 year. With readily available supervision and technical assistance, performs simple development work. Plans, constructs or repairs a variety of ordinary tools, dies, jigs, gauges, fixtures, to close tolerances. Performs difficult tool room machine operations. Works from complicated drawings and sketches. Uses shop mathematics and a variety of precision measuring instruments. Does skilled fitting, adjusting, etc. Typical work products include ordinary single and combination perforating and blanking dies, single position milling fixtures and box or stand type drill jigs.

117.186 TOOL AND DIE MAKER II**GRADE 3**

Second of three levels of tool and die maker. The job typically requires trade school and 3+ years of tool room experience, or equivalent. Under limited supervision and with minimal technical guidance, performs difficult development work. Plans, designs, constructs or repairs a wide variety of intricate and complicated tools, dies, jigs, gauges, fixtures, to close tolerances. Constructs complex units where design is available. Selects allowances and devises mechanism detail. Does skilled fitting, timing and adjusting. Works from complicated drawings and sketches. Uses advanced shop mathematics and all types of precision measuring instruments. Typical work products include combination dies for parts of irregular contour, ordinary index milling fixtures, box type drill jigs with difficult locating or nesting features and complicated foot press and arbor press tools.

117.185 TOOL AND DIE MAKER III

GRADE 2

Third of three levels of tool and die maker. The job typically requires trade school and 6+ years of tool room experience, or equivalent. Under general supervision and without technical guidance, other than engineering input, performs the most difficult development work. Plans, designs, constructs or repairs a wide variety of highly intricate and complicated tools, dies, jigs, gauges, fixtures, to extremely close tolerances. Constructs tools where no design is available. Selects allowances and devises mechanism detail. Does highly skilled fitting, adjusting, and timing. Performs any tool room machine operation. Works from complicated drawings and sketches. Uses advanced shop mathematics and all types of precision measuring instruments. Typical work products include multi-station progressive dies, intricate compound dies of irregular shape, sub-press dies for parts of delicate outline and complex index milling fixtures.

117.622 TOOL, DIE AND MOLD REPAIRER

GRADE 3

Repairs a wide variety of tools, dies, molds, jigs, fixtures and gauges working to close tolerances. Diagnoses and corrects problems in complicated dies, molds, and tools. Performs machining operations on die components and inserts to either repair a die or modify a die for production. Diagnoses problems and prepares corrective actions from the material strip or piece parts.

117.111 TOOL GRINDER

GRADE 5

Set up and perform internal, external and surface grinding operations to obtain interrelated dimensions and maintain very close tolerances on a wide variety of tools, punches, dies, fixtures, jigs, gauges and form cutters, following standard practice or special instructions. Lay out profile templates and select, dress and shape wheels for proper contours and finishes.

117.110 TOOL GRINDER

GRADE 4

Set up and operate all types of grinders to perform a wide variety of difficult grinding operations to exacting tolerances and interrelated dimensions. Grind punch and die parts, tools, form tools, machine tool tracer templates, thread gauges and master gauges. Calculate lead screw gear combinations. Plan methods and grinding sequence and select and dress wheels.

WELDING (118)**118.491 ARC WELDER****GRADE 7**

Perform hand welding operations in all positions for mechanical strength on standardized assemblies and products. Operate welding machine, regulate current and voltage for proper fusion of metals and use size and type of rod prescribed or furnished.

118.489 ARC WELDER**GRADE 5**

Perform ordinary hand welding operations in all positions for mechanical strength and high pressure on a wide variety of assemblies and products. Block, clamp or hold parts in relative position to avoid distortion. Operate machine, regulate current and voltage for proper fusion of metals and select electrode type and size.

118.025 BRAZER**GRADE 7**

Braze to bond components together in the assembly of metal parts as specified by layouts, work orders or blueprints, using welding apparatus. Braze together broken parts and cover holes to repair leaks as required.

118.495 COMBINATION WELDER**GRADE 5**

Operate arc or gas welding equipment together with atmospheric control equipment for ordinary hand welding operations in all positions to meet specifications for mechanical strength and high pressures on diversified assemblies and products composed of alloys. Block, clamp or hold parts in relative position to avoid distortion. Operate machine, regulate current and voltage for proper fusion of metals, pressures and flow of gas or other materials. Select electrode type and size, tip sizes and welding rod for oxyacetylene welding.

118.452 LAYOUT/ASSEMBLY WELDER**GRADE 5**

Set up and tack weld a wide variety of large and fairly complicated assemblies and subassemblies, working from complicated drawings. Determine number and content of subassemblies to facilitate final assembly and welding. Assemble, align and square up parts and subassemblies, fit and grind.

118.487 LEAD ARC WELDER**GRADE 3**

Perform unusual and difficult horizontal and vertical welding operations on a broad range of metals and alloys to produce a wide variety of large and complex units with high strength and pressure requirements. Plan welding sequence, select electrode type and size, current and voltage. Regulate current and voltage for proper penetration and fusion of dissimilar metals. Align parts to exacting tolerances and secure welds of maximum strength with minimum distortion, working in confined areas. Instruct, direct and assist lower graded welders.

118.500 WELDER I

GRADE 9

First level of production welding. The job typically requires technical training in welding and experience of less than 1 year, or equivalent. With readily available supervision and technical guidance, positions material to be welded, using standard fixtures in most cases, and applies hand-eye coordination to achieve the desired weld. Materials welded may include steel, stainless, aluminum or various alloys and the methods may include gas welding, shielded metal arc, gas-tungsten arc, gas-metal arc or submerged arc, but the variety of applications tends to be limited to standard products and materials where plans are specified, welding positions are routine and work may be characterized as longer production runs. Regulates heat and feed and may select electrodes, tips and rods. Works from specifications, drawings, prints and welding symbols.

118.493 WELDER II

GRADE 3

Advanced level of production welding. The job typically requires technical training in welding and 3+ years of related experience, or equivalent. May require special certification. Under limited supervision and minimal technical guidance, positions material to be welded and applies hand-eye coordination to achieve the desired weld. Materials welded may include steel, stainless, aluminum, or other alloys, and the methods may include gas welding, shielded metal arc, gas-tungsten arc, gas-metal arc or submerged arc. All-position welding may be required. The variety of applications requires an ability to plan, layout and perform diversified work, which may be characterized as short run production or job shop (custom work). Includes high pressure and code welding or other work involving critical safety and load requirements or welding where appearance is critical. Regulates heat and feed and may select electrodes, tips and rods. Works from more complex specifications, drawings, prints and welding symbols. May provide technical direction to others.

118.453 WELDING SETTER

GRADE 6

Setup and tack weld standard assemblies and subassemblies from complicated drawings. Assemble, align and square up parts and subassemblies, fit and guide.