

U.S. Office of Personnel Management  
Office of Merit Systems Oversight and Effectiveness  
Classification Appeals and FLSA Programs

Dallas Oversight Division  
1100 Commerce Street, Room 441  
Dallas, TX 75242-1027

**Job Grading Appeal Decision**  
**Under section 5346 of title 5, United States Code**

**Appellant:** [appellant] et al.

**Agency classification:** Aircraft Mechanical Parts Worker  
WG-8840-7

**Organization:** [organization]  
Production Branch  
Propulsion Division  
Maintenance Directorate  
Department of the Air Force  
Tinker Air Force Base, Oklahoma

**OPM decision:** WG-3701-8  
(Title at the discretion of the agency)

**OPM decision number:** C-3701-08-01

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Bonnie J. Brandon  
Classification Appeals Officer

February 11, 2003

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Date

As provided in section S7-8 of the *Operating Manual: Federal Wage System*, this decision constitutes a certificate that is mandatory and binding on all administrative, certifying, payroll, disbursing, and accounting officials of the government. There is no right of further appeal. This decision is subject to discretionary review only under conditions and time limits specified in section 532.705(f) of title 5, Code of Federal Regulations (address provided in the *Introduction to the Position Classification Standards*, appendix 4, section H).

Since this decision changes the classification of the appealed position, it is to be effective no later than the beginning of the first pay period that begins after the 60<sup>th</sup> day from the date the appellants filed an appeal with the agency (5 CFR 532.705(d)). The servicing personnel office must submit a compliance report containing the corrected job description and a Standard Form 50 showing the personnel action taken. The report must be submitted within 30 days from the date of this decision.

**Decision sent to:**

[3 appellants names and addresses]

Chief, Classification Section  
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Department of the Air Force  
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## **Introduction**

On August 21, 2002, the Dallas Oversight Division of the U.S. Office of Personnel Management (OPM) accepted a job grading appeal from [names of 3 appellants]. The job is currently classified as Aircraft Mechanical Parts Worker, WG-8840-7. The appellants believe the job should be classified in the Metal Processing Family, WG-3701-11. The appellants work in the [organizational location], Production Branch, Propulsion Division, Maintenance Directorate, Department of the Air Force, at [name] Air Force Base, [state]. We have accepted and decided their appeal under section 5346 of title 5, United States Code (U.S.C.).

In making our decision, we carefully considered all of the information contained in the written record. This includes information provided by the appellants and the agency personnel office, including their current work assignments and job description (JD), number [number]. The record information was supplemented by several telephone interviews. We conducted a telephone audit with the appellants' group representative, [appellant], on October 10, 2002, and October 29, 2002. We also interviewed her first-level supervisor by telephone on October 11, 2002, and the process engineer who works directly with the appellants on October 17, 2002.

## **General issues**

The record shows that the appellants agree with the accuracy of their JD but disagree with the assigned occupational code and grade. The appellants compare their job to other positions located within the agency. By law, we must classify positions solely by comparing their current duties and responsibilities to OPM job grading standards and guidelines (5 U.S.C. 5346). Since comparison to the standards is the exclusive method for classifying positions, we cannot compare the appellants' current duties to other positions as a basis for deciding an appeal. The appellants also make reference to their 280 hours of on-the-job training certification requirement in the resistance welding and brazing procedures. However, the requirement that employees be licensed or certified to perform work does not affect the grades of their jobs (section II.C.2.d of Part 1 of the *Job Grading System for Trades and Labor Occupations*).

## **Job information**

The appellants are assigned to the ADH Area, [name] Subunit where the primary purpose of their job is to repair a variety of jet engine components by replacing metals and installing new parts onto the components utilizing the ADH process. The ADH process consists of preparing parts (20%), brazing and resistance welding (40%), mavigraph inspection procedures (20%), mixing of metal compound powders, alloys, and binders (17%), and special handling, fitting, and cleaning process (3%). The ADH process is applied on damaged and incomplete parts which cannot be repaired by conventional welding methods. This process is used to repair F-101, F-100, F-110, F-108, and F-118 internal engine components. Some of these parts are located in the high-pressure turbine, low-pressure turbine, and high-pressure compressor areas. These parts consist of, but are not limited to, inner nozzle supports, various seals, rings, stators and honeycomb spads.

The appellants receive various engine parts after the fluoride ion cleaning, nickel plating, acid etch, plastic bead blast, and machining processes. They perform visual examinations to evaluate whether the finish on the parts is adequate to ensure bonding during the ADH process. If this criterion is met, the appellants perform a detailed visual examination to identify surface cracks in the part and take close tolerance measurements, using a variety of different types of micrometers and calipers. The appellants determine whether the brazing process can be accomplished within the allowable gap tolerances of .004 to .007 inches.

The appellants clean the parts, determine which alloy compounds to use according to the size and position of repairs being made, weigh and mix the alloy powders to specifications outlined in the process orders, and order required parts to make the repairs (e.g., honeycomb spads, powders, binding materials). They ensure the security of precious metals within the workspace and maintain detailed records of metal powders for a period of five years to comply with engine record requirements. They log and track these materials from receipt to application.

The appellants replace metal on parts, using the ADH process, by applying metal mixtures to the parts with syringes or other applicators. Shim stock is tacked to the part by using a resistance welding machine. For parts requiring brazing or bonding, the appellants apply metal tapes of various alloys, widths, and thicknesses into the chambers of the honeycomb and inner diameter of ramps and baffles. This process allows optimum contact during the actual resistance welding process. The appellants program the dual pulse resistance welder to the settings specified in the process order and have the flexibility to make adjustments as necessary. In the repair of the F-100 stator, the slurry, which contains gold alloy, is pressed by using a stretcher which holds the slurry in place. In the front frame, the appellants apply the slurry into blind areas using only blueprints or drawings and verify proper application by using a boroscope. The appellants hand carry parts to the ovens to ensure that brazing material is not lost in transit and inspect the parts upon return to verify proper bonding. The appellants inspect each individual cell to ensure the adequate bonding of honeycomb spads onto the parent metal by using a fiber optic video mavigraph system, where they review enlarged images of honeycomb cells on a television monitor. The system is comprised of a microscope coupled with a fiber optic lighting system which allows the repairer to observe the bonding on the backside of the installed honeycomb, which is not observable with the naked eye. Unbonded areas of 10 or more cells are marked and filled with the appropriate alloy.

The appellants also assist process engineers in prototyping repair procedures for various engine parts. Prototyping of parts repair procedures transpires when process changes are initiated by the engineers or identified by the workers. The engineers solicit the appellants' input while writing the process orders for ADH Area, [name] Subunit repair prototypes (i.e., step-by-step repair procedures; types and quantity of alloy powders to be used; welding settings; and duration of oven bake) and during the testing and verification procedures. Prototyping of repair procedures occurs on an average of three times per year. The appellants spend about two or three days providing input to the engineers during the process order writing phase and an average of three days during the testing period. Once the prototype has been tested, verified, and approved, it becomes an established parts repair procedure.

The ADH Area personnel receive general supervision from the WS-8840-7 Aircraft Mechanical Parts Worker Supervisor. Work is assigned orally or through work orders. Technical problems, which arise during the repair process, are referred to the process engineer for assessment.

### **Occupation and standard determination**

The agency has assigned the job to the Aircraft Mechanical Parts Repairer, 8840, occupation. The appellants believe their job consists of several occupations, which include Welder, 3703; Nondestructive Testing, 3705; Metalizing, 3707; and the Quality Assurance series, GS-1910. They also make reference to the obsolete Metal Process Working and the Brazing and Soldering occupational codes. Therefore, the appellants believe their job should be classified in the Metal Processing Family, 3701, at the grade 11 level.

A Federal Wage System (FWS) job is coded to the occupation which represents the best match between the content of the job and the definitions of the various occupations. In order to make the appropriate determination, we reviewed the 3703, 3705, 3707, GS-1910, and the 8840 occupation descriptions.

The Welder, 3703, standard is directly applicable only to welding work and acknowledges brazing, soldering, flame and arc-cutting, and surface hardening as work operations incidental to welding duties. This standard is not directly applicable to such other nonwelding work itself. For example, the standard does not provide applicable criteria for grading the job of an employee performing brazing work on a full-time basis. Welding workers apply a variety of electric resistance welding methods and equipment, or one or more manual welding processes to carry out welding operations. The work requires knowledge of electric, gas, and other welding processes such as electron beam welding, and the skill to apply these processes in manufacturing, repairing, modifying, rebuilding, and assembling various types of metal and alloy parts, equipment, systems, and structures such as buildings, aircraft, and ships.

The appellants spend about 40 percent of their time performing resistance welding and brazing work. They perform electric resistance welding by using a resistance welding machine, but they are not required to perform or have knowledge of gas and other welding processes, as required by the standard. In addition, the standard considers the brazing work performed by the appellants to be incidental to welding work. The work performed by the appellants does not meet the full intent of the Welder standard.

The Nondestructive Testing, 3705, occupation includes jobs involved in the nondestructive examination of metals, composites, ceramics, plastics, and other materials for internal and external structural defects, delaminations, corrosion, and moisture penetration using magnetic particle, liquid penetrant, eddy current, radiographic, ultrasonic, or other types of nondestructive test processes and equipment. The work includes equipment setup, operation, adjustment, and evaluation or interpretation of test readings or results within established parameters for acceptance or rejection. This occupation does not include jobs that primarily require (1) journey level knowledge and skill of the work processes involved in producing or repairing the items or materials tested or (2) technical knowledge of engineering, physical, or other sciences in the direct support of laboratory or research operations.

After receipt of parts, the appellants perform visual examinations to evaluate if the finish is adequate to ensure bonding. If this criterion is met, the appellants perform a very detailed visual examination to identify surface cracks in the part, and take close tolerance measurements, using a variety of different types of micrometers and calipers. The appellants determine whether the brazing process can be accomplished within the allowable gap tolerances of .004 to .007 inches. Once the repairs are completed, the appellants inspect the part to determine whether the repairs were made within specifications. For example, when honeycomb spads return from heat treat, the appellants inspect the part to ensure proper bonding. They use a fiber optic video magnifying system which enlarges the images of honeycomb cells on a television monitor. They look for areas containing no more than 10 unbonded cells. They interpret the results of the inspection and determine if the part was adequately repaired or whether it must be rebrazed or recycled. Although there is no published job grading standard for the Nondestructive Testing, 3705, occupation, the appellants' job does not meet the intent of this occupation. The appellants perform testing as a process of their job and not as the primary purpose. Also, this occupation excludes jobs that primarily require journey level knowledge and skill of the work processes involved in repairing the items or materials tested.

The Metalizing, 3707, occupation includes jobs involved in dipping or spraying molten metal coatings, such as tin, zinc, or copper, on metal objects by hand or by use of equipment such as metal spraying machines or galvanizing equipment. Although no job grading standard exists for this occupation, the appellants do not perform duties as described by the occupational definition. The process of repairing parts using the ADH process includes cleaning the parts with an alcohol solution, determining which alloy compounds to use according to the size and position of repairs being made, weighing and mixing the alloy powders to specifications outlined in the process orders, and ordering required parts to make the repairs. The appellants replace metal on parts, using the ADH process, by applying mixtures to the parts with syringes or other applicators. For parts requiring brazing or bonding, the appellants apply metal tapes of various alloys, widths, and thicknesses into the chambers of the honeycomb, and inner diameter of ramps and baffles to allow optimum contact during the actual resistance welding process. The appellants also maintain detailed records of metal powders for a period of five years to comply with engine record requirements. The appellants do not dip or spray molten metal coatings or use metal spraying machines or galvanizing equipment. Therefore, the job performed by the appellants is excluded from this occupation.

The Quality Assurance Series, GS-1910, includes all positions which perform, administer, or advise on work concerned with assuring the quality of products acquired and used by the Federal Government. The work of this series involves the development of plans and programs for achieving and maintaining product quality throughout its life cycle, monitoring operations to prevent the production of defects and to verify adherence to quality plans and requirements, and analysis and investigation of adverse quality trends or conditions and initiation of corrective action. The work requires analytical ability combined with knowledge and application of quality assurance principles and techniques and knowledge of pertinent product characteristics and the associated manufacturing processes and techniques. This series covers positions involved in planning, developing, or administering quality assurance programs. Since quality cannot be "inspected" into the finished product, quality assurance focuses its activities on the identification, prevention, and correction of unsatisfactory conditions or elements which influence acceptability

of the end product. Work which primarily involves inspection or test functions is excluded from this series. For example, jobs with the primary purpose of accepting or rejecting the product of trades, crafts, or manual labor work through inspection processes to determine the condition as repairable or condemned or work of a similar nature which paramount requirement is the occupational knowledge and experience of such trades are graded under the Federal Wage System.

The appellants perform a close visual examination of parts upon receipt to ensure serviceability and after they have completed the repair process to determine whether the part was adequately repaired. Their required duties, skills, and knowledge do not match those of the Quality Assurance series. The appellants' primary duties do not involve planning, developing, or administering quality assurance programs, but rather the job of replacing metals and installing new parts onto components. In addition, their job does not require the level of analytical skills, knowledge, and application of quality assurance principles and techniques, as required in the Quality Assurance series. The type of inspection conducted by the appellants is an inherent aspect of their entire repair process. The appellants' duties are appropriate for the Federal Wage System and, therefore, excluded from the Quality Assurance series.

We reviewed the Aircraft Mechanical Parts Repairer, 8840, job grading standard. The occupation covers nonsupervisory work involved in the repair, modification, overhaul/recondition, and test of mechanical parts and components removed from fixed and rotary wing aircraft such as control columns, transmissions, gear boxes, landing gear components, clutch assemblies, rotor head assemblies and blades, constant speed drives, mechanical actuators, wheel and rotor brake assemblies, cargo hooks, engine controls, cable tension regulators, accessory drive gear boxes, cargo winches, turbine blades, and compressor vanes. The work requires knowledge of the mechanical relationships and operational characteristics of mechanical parts and components being repaired or reworked. The work does not require a substantive knowledge of aircraft systems and their interrelationships.

The record and supplementary information show that the primary purpose of the appellants' job is to repair a variety of jet engine components by replacing metals and installing new parts onto the components. The appellants perform nonsupervisory work involved in the cleaning, repair, and close visual examination of aircraft engine components according to detailed repair procedures found in work control documents. The work involves repairing aircraft engine parts by using the ADH process (resistance welding, brazing, powder mixing, and inspection). Although the basic purpose of the appellants' work is to repair aircraft parts, the work does not involve disassembly and assembly or overhaul or recondition of components as described in the 8840 standard. Even though this job grading standard describes certain aspects of the primary purpose, duties, and responsibilities of the appellants' job; it is not the standard most appropriate for grading their job.

We also found that the appellants' job does not meet the definition of a mixed job. Jobs which fully meet the performance of work in two or more occupations are coded to the occupation which is most important for recruitment, selection, placement, promotion, or reduction in force purposes. Although the appellants' job contains elements of the previously mentioned

occupations, it does not meet the full requirement of performance of work in two or more occupations.

The 3700 job family includes occupations that involve processing or treating metals to alter their properties or produce desirable qualities such as hardness or workability, using processes such as welding, plating, melting, alloying, casting, annealing, heat treating, and refining. The duties of the appealed job are identifiable with the job family but with no established occupation within that family. The occupation which most closely describes the primary duties of the appealed job is the Brazing and Soldering, 3720, occupation, which has been cancelled because of its limited use throughout the Federal Government. That occupation involved cleaning and positioning items to be hand brazed; applying flux, preheating, and operating gas or induction brazing equipment to braze metal joints, using copper, silver alloy, or similar high melting point material to form the bond between ferrous items and steel or cemented carbide items such as cutting tools and wear inserts, fixtures, and gauge parts; and/or preparing work, applying flux, heating, and joining metal surfaces using low melting point soldering materials. However, the Handbook of Occupational Groups and Families states if the occupation is still being performed and no other series/occupation is appropriate, the position should be classified in the "01" code for the appropriate occupational group or job family. Therefore, we find this position to be appropriately assigned to the 3701 code in the Metal Processing Family.

There is no job grading standard for the 3701 code. The appropriate method for determining the grade of a job which has no directly applicable standard is to select other standards as a basis for conducting a cross reference series comparison. The job grading standards that provide the most appropriate cross reference for the appellants' job are the Welding, 3703; Plastic Fabricator, 4352; and the Aircraft Mechanical Parts Repairer, 8840.

### **Title determination**

OPM has prescribed no titles for jobs in the 3701 occupational code. Therefore, according to section III. B of Part I of the *Job Grading System*, the appellants' agency may choose the official title for the job in accordance with the principles and instructions contained in that section.

### **Grade determination**

The 3703, 4352, and 8840 standards identify and describe key characteristics which are significant for distinguishing between levels of work. They define grade levels by considering four factors: skill and knowledge, responsibility, physical effort, and working conditions.

#### *Factor I: Skill and knowledge*

This factor covers the nature and level of skill, knowledge, and mental application required in performing assigned work.

The Welding 3703 job grading standard covers aspects of the brazing and resistance welding duties (40%) of the appealed job. Grade 8 welding workers apply skill and knowledge to set up and operate various electric resistance welding machines or to use one or more manual welding



processes. Examples include a gas welding process using oxyacetylene or oxy-hydrogen and an arc welding process such as gas carbon-arc or gas metal arc to weld parts made of commonly used metals. Welding workers at the 8 level assure proper spacing, pressures, and heat cycles when operating electric resistance welding machines. As needed, grade 8 welding workers apply skill in using jigs and fixtures and in clamping pieces together to assemble and set up the parts to be welded. When welding contoured shapes, they adjust the arms of the electric resistance welding machine to obtain setups that will provide access to all surfaces to be joined.

The skill and knowledge required to perform the resistance welding duties of the appealed job are comparable to those required at the 8 level and fall short of the 10 level where the skill and knowledge of a wider range of manual welding processes and more difficult welds are applied. In comparison with the application of a variety of electric resistance welding processes and equipment, or the use of one or more manual welding processes as described in the grade 8 level, grade 10 welders use accepted trade methods and a variety of manual welding processes. For example, grade 10 welders use several different gas torch processes, various electric arc processes including inert gas shielded ones, or a number of both kinds of processes, to weld all types of commonly used metals and alloys of various sizes, shapes, and thicknesses, including dissimilar metals such as copper to steel.

The Plastic Fabricator 4352 job grading standard covers comparable duties of the appealed job which involve preparing and cleaning parts with solvents, mixing and weighing filler compounds, and applying and curing compounds onto the parts. At grade 7, plastic workers apply a general knowledge of the physical properties and working characteristics of a few common types of plastic resins and sheet stock as polyesters, epoxies, acrylics, and vinyls in conjunction with a practical understanding of the effect of the chemical reaction between resins and other compound ingredients such as catalysts, fillers, retardants, pigments, and reinforcing materials in accomplishing routine manufacture, installation and repair assignments. They are knowledgeable of the use, preservation, and storage needs of resins, compound agents, solvents, and cleaning and parting agents specified in instructions. Workers at this level are also skilled in weighing, mixing, and blending the ingredients together by hand or machine in proper sequence and proportions. Workers skillfully mark, cut, and trim materials such as pre-impregnated plastics, sheet stock, fiberglass cloth, foam, and honeycomb to dimensions given in simple drawings or work orders. They are familiar with a variety of curing and annealing processes for plastic compounds and adhesives, and they select cure times, temperatures, and pressures by reference to specific instructions. They know how to examine parts and items to locate defects. They are able to prepare defective surfaces for successive operations by sanding, scraping, and applying prepared solvents and cleaning agents. They are skilled in removing excess resin and in performing other final operations such as trimming, sanding, routing, and installing. They know how to clean and prepare mold surfaces with release agents; how to pour or inject liquid compounds into voids and available molds; how to bond plastic to plastic and plastic to metal articles; and how to finish manufactured parts by sanding, filing and trimming. Grade 7 workers are able to use measuring instruments such as balance and gram scales for weighing resins and other compound ingredients; moisture indicators and optical micrometers for detecting and measuring depths of damaged areas; and rulers, squares, forms and templates to measure materials and mark cutting and trimming lines.

Grade 9 plastic workers have a greater knowledge than grade 7 workers of the working characteristics and properties of the same types of plastic materials named at the lower level, as well as such plastic and elastomeric tooling compounds as silicones, polyurethanes, plastisol vinyl, and flexible epoxies. They are more skilled in varying the proportions of plastic and synthetic rubber resins and other compound ingredients used in order to obtain required working properties through consideration of factors such as size of item, effect of temperature and humidity conditions on setup time, acceptable pot life requirements, and the penetrability by different viscosities of compounds through various weaves and thicknesses of reinforcement materials. They know the compatibility of commonly used resins, release agents, and surface parting compounds and are more skilled in avoiding problems. At this level, the plastic workers apply a broader knowledge of and skill in using low pressure shaping, forming, and casting techniques than grade 7 workers. They use a more extensive knowledge of determining probable cause and adjustments to cure times, temperatures and pressures, or mixing and pouring techniques. At this grade level, plastic workers are more skilled in reading, interpreting and applying directions related to the mixture, ratios, possible uses, and required cure times, temperatures and pressures of common plastic resins, compound materials, solvents, and mold release agents than grade 7 workers. They are also more skilled in reading dimensions and sizes in drawings and blueprints to make templates used in marking, cutting and trimming of final products. In addition, they use the same types of equipment as described at the grade 7 level; however, they are more skilled in using them to meet more rigid appearance, thickness, shape, finish, and test requirements.

The skill and knowledge required of the appealed job exceed the 7 level. For example, the appealed job requires the skill and knowledge necessary to determine which alloy compounds to use according to the size and position of the repair being made. The job also requires the skill and knowledge necessary to select blends and mix various combinations of alloy powders to meet the specifications as indicated on the technical and process orders. However, the skill and knowledge required of the appealed job are not fully comparable to the 9 level of this job grading standard, where broader skill and knowledge are applied to plan and accomplish repair and manufacture of parts with more complicated and varied shapes or damaged contours. The 8 level is creditable.

Work at the 7 level of the Aircraft Mechanical Parts Worker, 8840, standard involves the disassembly, cleaning, inspection, repair, assembly, and maintenance of mechanical parts of aircraft components according to detailed maintenance and repair procedures. The work includes visual and dimensional examination of parts and less complex components such as fuel valves, rotor blades, compressor blades, and oil pumps for obvious defects such as nicks, scratches, leaks, or corrosion, or from worn, bent, or broken parts; replacing or reworking damaged parts; and performing bench tests for operability of moving parts. Workers may assist higher grade mechanical parts repairers on assignments involving mechanical components of greater complexity by disassembling and assembling the simpler items, erecting jigs and fixtures, and installing safety wires and seals. At this level, aircraft mechanical parts workers are skilled in the use of test equipment and measuring devices such as bench test sets, micrometers, depth gauges, dial indicators, and calipers to inspect, dismantle, repair, and test mechanical assemblies and electro-mechanical components. The work requires the ability to rework and assemble parts into assemblies. They determine whether to rework or replace parts that exceed allowable wear

thresholds based on visual detection of unusual wear patterns or measurements of disassembled parts compared to directly applicable go/no-go specifications. The work requires the ability to use lapping machines, drill presses, grinders, sanders, and other power and hand tools to remove imperfections such as pits, nicks, protrusions, and scratches; and to assemble parts into assemblies and components by bolting, bonding, riveting, shimming, honing, lapping, or selective fitting from groups of like parts in restoring components to their original shape and configuration.

Workers at the 7 level are knowledgeable of visual, tactile, and dimensional procedures designed to identify problems in uncomplicated assemblies such as pumps, sensors, turbine blades, diffusers, and rotor blades. For example, they are skilled in the use of common types of plastic resins, epoxies, acrylics, and other similar materials to repair rotor blade surface areas. They are also skilled in the use of micropoise and static balancing equipment to balance rotor blades. They are capable of making intermediate and final adjustments during assembly of components involving alignment and clearances where critical tolerance requirements are not an essential factor. They have the ability to interpret single-view blueprints, drawings, diagrams, and similar drawings, and to use arithmetic and standard handbook formulae in performing dimensional measurements and maintaining required tolerances. They use a working knowledge of mechanical principles and a practical understanding of electricity to repair and test the various subassemblies.

Assignments at the 9 level are more complex and have a larger number of interrelated parts and closer tolerances requiring a higher skill level in tracing hard-to-locate defects, rework, and reassembly. Repairers at this level also have greater knowledge of how the various components fit and work together. At this level, aircraft mechanical parts repairers disassemble, examine, evaluate, repair, align, balance, adjust, modify, troubleshoot, reassemble, and functionally test, calibrate, and maintain a variety of components. They utilize knowledge of mechanical rework processes and procedures, basic electrical principles, and a basic understanding of hydraulic principles to diagnose, repair, and test a wide variety of mechanical components or assemblies. They employ a broad knowledge of shop and trade practices and are skilled in fitting, aligning, mating, adjusting, and shimming mechanical parts which function primarily to transmit power mechanically. Repairers are capable of recognizing various types of debonding, corrosion, and metal defects. They also determine whether to replace parts or rework by hand, machine lapping, honing, sanding, shimming, or bonding. They check all parts for critical dimensions and make adjustments to assure the components are serviced within required specifications. Repairers at the 9 level are skilled in the use of powered and hand tools, jigs, fixtures, special tools, test equipment, and instruments such as micrometers, dial indicators, vernier calipers, feeler gauges, ohmmeters, drill presses, and balancing equipment. They are also skilled in the application of standard formulae, shop mathematics, trade theories, and industry practices in overhauling, repairing, and isolating the causes of malfunctions. They may be required to set up and operate test equipment such as a hydraulic test stand to perform dynamic and static pressure tests and functional tests or a computerized spin or whirl tower to dynamically balance a complete hub and blade assembly and make appropriate adjustments to set blade pitching moments and tracking. In addition, repairers at this level read and interpret technical orders, manufacturers' specification manuals, parts supply books, multiple-view blueprints, and schematic diagrams; and modify and assemble parts to specified critical tolerances, remove

defects by honing or lapping until specified measurements are met, and adjust for alignment and fit to meet technical specifications.

The skill and knowledge required of the appellants to repair internal engine parts are of a more complex nature than those described at the 7 level. The appellants do not assist higher grade mechanical parts repairers in performing the simpler tasks involved in assignments. Also, the 7 level involves the knowledge of procedures designed to identify problems in uncomplicated assemblies. In contrast, the appellants are required to possess knowledge of problem identification by performing visual inspections of various internal engine parts, including the more complex and technical process of inspecting the bonding of honeycomb cells onto the parent metal by using a fiber optic mavigraph system.

The skill and knowledge required of the appealed job exceeds the 7 level but falls short of the 9 level. The appellants examine, evaluate, repair, align, adjust, modify, troubleshoot, reassemble, and test internal engine components. They also utilize the knowledge of mechanical rework processes and procedures to diagnose, repair, and test components. For example, after the appellants install the honeycomb spads and receive the parts from heat treat, they examine the area between the installed honeycomb spads and the parent metal of the component by using a mavigraph inspection system. The repairer is required to possess skill and knowledge in the operation of the equipment and inspection process in order to identify internal structural defects and adequacy of bonding within specified tolerances of no more than 10 unbonded cells. They interpret the results of the inspection and determine whether the parts are adequately repaired or require hand repair, rebrazing, or recycling. Unbonded areas of more than 10 cells are marked and carefully hand repaired with the appropriate amount of bonding material. Also, after receiving engine parts from various shops, the appellants evaluate whether the finish on the parts is adequate to ensure bonding and whether the brazing process can be accomplished within the close gap tolerance measurements of .004 to .007 inches. They are skilled in the use of powered and hand tools, jigs, fixtures, special tools, test equipment such as the fiber optic video mavigraph, calipers, micrometers, measuring scales, powder blenders, and the dual pulse resistance welding machine. The appealed job requires a broad knowledge of shop and trade practices in order to repair parts using the ADH process which includes preparing parts, brazing, resistance welding, inspection procedures, mixing and application of metal and binder compounds, special handling, fitting, and cleaning of parts. Additionally, the appellants read and interpret technical orders, manufacturers' specification manuals, parts supply books, blueprints, and schematic diagrams. Although the appealed job requires closer tolerance measurements and a higher skill level in tracing hard-to-find defects, rework, and reassembly than required at the 7 level, the skill and knowledge required for the 9 level of this job grading standard are applied in the context of repairing more complex parts involving large numbers of interrelating parts.

We assess this factor at the 8 level.

### *Factor II: Responsibility*

This factor refers to the nature and degree of responsibility involved in performing work.

Grade 8 welding workers perform welding operations on the basis of written or oral instructions from the supervisor, blueprints, sketches, and work orders that clearly show what is to be done. At this grade level, welding workers select the techniques, machines, and materials. When needed, they select the jigs and fixtures commonly used to do the assigned work. Welding workers are responsible for making welds to meet specifications, and to assure proper penetration and freedom from pockets, scales, or other defects. Work is only spot-checked during its progress. The supervisor advises on unusual problems and checks the overall work for adequacy.

Welders at the 10 level determine the work to be done and the steps to accomplish it. They plan and lay out the work from blueprints, sketches, drawings, specifications, and work orders. They determine the welding techniques to use and select the proper materials such as the right size and type of welding electrodes or rods. In comparison with the grade 8 level, welders at grade 10 apply a variety of manual welding processes to make more difficult welds in hard to reach places, that must meet close tolerance, strength, and other requirements, for example, evenness of fit and smoothness of contour. The work is performed with little or no in-progress check. Final products are reviewed to see that completed welds are free from cracks, slag, or other defects, and meet specifications and accepted trade standards. Welds are subject to radiographic, magnetic particle, dye penetrant, pressure inspection, and other tests. The supervisor is called on for advice on unusual problems.

The responsibility exercised by the appellants to perform their work is creditable at the 8 level. Although the appellants exercise a high degree of independence while performing and inspecting their work, the complexity and scope of work are not comparable to those involved at the 10 level. For example, the degree of responsibility exercised in planning and laying out work involving a variety of manual welding processes to perform more difficult welds in hard to reach places is not required of the appealed position.

Grade 7 plastic workers receive work assignments in the form of specific oral or written instructions accompanied by sketches or easily understood blue prints that show what is to be done and the materials to be used. They select the techniques, tools, equipment, and specified materials commonly used to do the assigned work. They notify the supervisor or higher graded worker when they encounter problems such as large numbers of air bubbles, pitting, warpage, or delamination after having used standard methods and techniques. Work may be spot-checked in progress and is reviewed upon completion to see that it meets acceptable standards.

At grade 9, the supervisor assigns work orally or through work orders accompanied by appropriate drawings or blueprints. The grade 9 workers must use more judgment in planning their work and determining equipment, procedures, and sequence of operations. They determine the ratio of resin to compound ingredients, the cure cycle and equipment needed, and the proper repair moldmaking techniques to be used. They are responsible for determining the cause of rejects, and for making corrections. The products of their work must meet more stringent requirements for size, appearance, proper contours, and required mechanical and electrical properties than those at the 7 level. At this grade, they work with greater independence than the grade 7 workers in that their work is normally checked by the supervisor and/or a quality

controller only after completion for conformance with job specifications and use of standard trade practices.

The appellants receive assignments from their immediate supervisor in the form of work orders and oral instruction pertaining to repair priorities. They perform their work using blueprints, schematics, work orders, and other specifications. The appellants determine which alloy powders to use according to the size and position of repairs being made, weigh and mix the alloy powders to specifications outlined in the process orders, and have the flexibility to vary the welding heat settings and welding electrodes. The appellants exercise flexibility in the repair process; however, the methods, techniques, and procedures used in completing work assignments are determined by the process orders. The appellants work with a great degree of independence from their supervisor and refer process questions and problems to the process engineers. The responsibility required of the appealed job does not fully compare to the 9 level of the 4352 standard where more judgment is used in planning their work and determining equipment, procedures, and sequence of operations. The responsibility exercised by the appellants exceeds the 7 level and is creditable at the 8 level.

Grade 7 aircraft mechanical parts workers receive assignments from their immediate supervisor, either orally or through work orders. They work independently from simple plans, sketches, and detailed specifications and complete work assignments that are usually routine and repetitive by following instructions and accepted trade practices. On routine work, they determine the proper methods, techniques, and procedures required to complete assignments. Decisions made are covered by specific, well-established work methods and procedures. Work is subject to review in progress and upon completion. On new or unusually difficult assignments, the supervisor or higher graded worker explains the specific procedures and the sequence to be followed and checks frequently for adherence to instructions.

At the grade 9 level, aircraft mechanical parts workers receive assignments from their immediate supervisor in the form of work orders, quality inspection reports, verbal instructions, or computerized work documents. They independently pretest, disassemble, and examine components before overhaul to determine operational deficiencies, determine the serviceability, and the extent of disassembly necessary to repair a unit or to incorporate modifications, and determine the methods, techniques, and procedures to use in completing work assignments. They perform functional and operational tests and dimensional checks to assure that components/assemblies being reworked are within required tolerances and specifications. Grade 9 repairers plan and lay out their work using blueprints, schematics, work orders, and other specifications. The supervisor reviews work in progress and completed work for adherence to specifications and accepted trade practices.

The responsibility exercised by the appellants to perform their work clearly exceeds the 7 level in the complexity and scope of work assigned; the difficulty and frequency of judgments and decisions made; the degree of supervisory controls; and the nature of work instructions and technical guides used.

The nature and degree of responsibility involved in performing this work exceeds the 7 level but falls short of the 9 level. The appellants work with parts which have close tolerances requiring a

higher level of skill in tracing hard-to-locate defects than required at the 7 level, but not in the context of more complex components which have a larger number of interrelating parts, as described at the 9 level. The appellants receive assignments from their immediate supervisor in the form of work orders and oral instruction pertaining to repair priorities. They perform their work using blueprints, schematics, work orders, and other specifications. The appellants determine which alloy powders to use according to the size and position of repairs being made, weigh and mix the alloy powders to specifications outlined in the process orders, and have the flexibility to vary the welding heat settings and welding electrodes. They independently pretest and examine components before rework to determine operational deficiencies, determine the serviceability, and the extent of repair necessary. The appellants exercise flexibility in the repair process; however, the methods, techniques, and procedures used in completing work assignments are determined by the process orders. When working with prototype repairs, the appellants' provide input to the process engineers during the process order writing and testing phases. The appellants work with a great amount of independence from examination of the part upon arrival, performing the repair procedure, and conducting the final inspection of the repaired component. They refer process questions and problems to the process engineers. Their immediate supervisor provides administrative supervision and prioritizes work to be completed but does not review the technical aspects of their work for adherence to specifications or accepted trade practices. Responsibility for this aspect of the work is creditable at the 8 level.

We evaluate this factor at the 8 level.

### *Factor III: Physical effort*

This factor covers the physical effort exerted in performing assigned work.

The physical effort in the 3703 job grading standard is described at the 8 level for all defined grade levels. The physical effort in the 4352 job grading standard is described at the 7 level for all defined grade levels.

The 8840 job grading standard makes distinctions in the degree of physical effort exerted. Grade 7 aircraft mechanical parts workers frequently handle objects weighing up to 40 pounds unassisted and occasionally objects weighing up to 70 pounds with assistance of other workers or weight handling equipment. They are required to lift, reach, bend, walk, pull, push, sit, and stand for prolonged periods of time. At the 9 level, repairers are frequently required to reach and work in awkward or cramped positions when placing items in test stands, in addition to the physical effort described at the 7 level.

The appellants' work consists of lifting, bending, stooping, and sitting for prolonged periods of time. They use lifting devices for heavy objects such as the F-100 front frame which weighs about 100 pounds. However, most of the parts handled by the appellants weigh less than 40 pounds and are lifted without assistance. Therefore, this factor falls short of the 9 level since the appellants' job does not require frequent reaching and working in awkward or cramped positions.

We assess this factor at the 7 level.

*Factor IV: Working conditions*

This factor covers the hazards, physical hardships, and working conditions to which workers are exposed in performing assigned work. The appellants perform their work in an air conditioned building. They are frequently exposed to metal dust and loud noise from shop equipment. Appellants are required to use protective equipment such as safety glasses, face shields, rubber gloves, and ear protection. The working conditions described in the 3703 job grading standard are all defined at the grade 8 level. The working conditions described in the 4352 and 8840 job grading standards are all defined at the 7 grade level.

We assess this factor at the 7 level.

*Summary*

We have evaluated the *Skill and knowledge* and *Responsibility* factors for the appellants' job at the grade 8 level by comparison with the four standards. Since the *Physical effort* required for the appellants' job does not meet the greater demands of the grade 9 level and the factor for *Working conditions* is properly assessed at the grade 7 level, these two factors do not have an impact on the overall grade for the appellants' job.

**Decision**

The appellants' job is properly graded as WG-3701-8, with the title to be determined by the agency.