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**Federal Wage System
Job Grading Standards**



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**FEDERAL WAGE SYSTEM
JOB GRADING
STANDARD
FOR
ENGINEERING
EQUIPMENT OPERATING,
5716**



**Workforce Compensation
and Performance Service**



ENGINEERING EQUIPMENT OPERATING, 5716

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WORK COVERED

This standard is to be used for grading nonsupervisory jobs which involve the operation of gasoline- or diesel-powered engineering and construction equipment with wheeled or crawler type traction. Jobs covered are those involving the operation of equipment such as graders, tractors with bulldozer or angledozer blades, front-end loaders, backhoes, trench diggers, and large industrial tractors with pan or scraper attachments. This equipment is used to perform such functions as cutting, moving, digging, grading, and rolling earth, sand, stone, and other materials, and to maintain ditches, road shoulders and beds, and firelines

WORK NOT COVERED

Jobs involving the operation of farm tractors, cranes, shovels, dragline buckets, orange peel buckets, full-time snow removal equipment, and aircraft towing are not covered by this standard.

TITLES

Jobs covered by this standard are to be titled *Engineering Equipment Operator*.

5716-8 ENGINEERING EQUIPMENT OPERATOR, GRADE 8 5716-8

General: Operate one or more types of heavy equipment to push, pull, pile, or load materials such as sand, gravel, earth, coal, or refuse. For example, the operators use equipment which is fitted with a front-end loader to maneuver to a specific spot to transfer material into a dump truck. They operate a bulldozer or angledozer in a refuse dump by maneuvering the equipment to push refuse into an open pit and cover with earth. They clear brush, tree stumps, and rocks. They adjust the attachments for proper level, angle, or depth, according to the work to be done and the type of equipment used.

Work is generally done on flat or rolling terrain, refuse dumps, and construction sites with simple terrain problems.

Skill and Knowledge: The operators are required to know the uses of the different sets of controls or operation of the equipment and attachments and be skilled in handling these controls to perform the work. Frequently, these different controls are handled at the same time, requiring good hand, foot, and eye coordination.

The operators are required to have a basic knowledge of the nature of the soil and features of the terrain to determine the proper approach according to the condition of the surface and subsurface.

The operators must be able to move the equipment about in confined areas.

Responsibilities: The operators follow oral instructions or written work orders concerning the location of the job and the work to be done. The work is performed largely without direct supervision.

They operate the equipment in a safe manner according to safety rules and regulations and use the equipment properly so that it is not damaged. They must remain constantly alert and operate the equipment carefully, especially when close to other persons, buildings, etc., to prevent injury to others and damage to the equipment.

Physical Effort: Heavy physical effort is used by the operators in constantly reaching, bending, turning, and moving hands, arms, feet, and legs to handle different sets of controls to operate the equipment and attachments. Considerable strain is caused by the constant vibration of the equipment and the jerking and jolting from operating over rough surfaces. Because of the location of some of the controls and attachments, the operators are frequently required to work in awkward or strained positions.

Working Conditions: Work is performed in all types of weather, often in an open driver's seat or platform, on hills, slopes, grades, rolling surfaces, and forests. The operators are exposed to injury due to the possibility of the equipment overturning. They are subject to noise, vibration, dust, dirt, and fumes from the motor and exhaust.

5716-10 ENGINEERING EQUIPMENT OPERATOR, GRADE 10 5716-10

General: Operate one or more types of heavy equipment to excavate, backfill, grade, or level earth to rough specifications on such projects as breaking new ground for trails, roads, canals, tunnels, or construction sites.

Move earth on mountains and steep slopes, graded curves and shoulders, rocky or soft ground, hilly forests, and other surfaces with similar rough features.

Grade surfaces, compact soils, or roll to exact specifications on flat or rolling terrain.

Adjust attachments for proper positioning and working order, making adjustments, usually, without stopping the power unit or the equipment.

Steer and operate by using clutches, levers, brakes, and valves according to the slope or tilt.

Operate close to buildings, trees, dropoffs, rocks, or other obstructions.

This level of work is considered to be more complicated than that described at the grade 8 level because of the increased operating complexity of the equipment and the requirement to operate on all types of terrain. While surfacing to fine specifications requires more "touch," it is done on terrain similar to that described at grade 8.

Skill and Knowledge: At this level, the operators must have more skill than at grade 8, in order to grade surfaces to rough or fine specifications by adjusting attachments while the vehicle is in motion and on all types of terrain.

In addition to the hand, foot, and eye coordination required at grade 8, good depth perception and a high degree of concentration are required to perform the operations necessary to grade the surface.

Operators are required to have more knowledge of a variety of soil composition and conformation than that outlined at the grade 8 level, as well as more knowledge of the purpose and limitations of a greater variety of attachments.

Responsibilities: The operators follow oral instructions or written work orders as described at grade 8. However, the operators perform the more difficult tasks of rough grading the earth to the general contour desired as well as fine surfacing on fiat or rolling terrain. Work is performed without direct supervision.

The responsibility for the safe operation of the equipment and for seeing that the equipment is not damaged is greater because of the requirement to work on rough terrain.

5716-10**5716-10**

Physical Effort: The physical effort is similar to that described at the [grade 8 level](#), but is somewhat more strenuous because of the generally larger pieces of equipment and the requirement for more frequent adjustments under more adverse operating conditions.

Working Conditions: The operation of larger and more complicated equipment in more difficult circumstances increases the exposure to injury, overturning, noise, and vibration than that described at the [grade 8 level](#).

5716-11 ENGINEERING EQUIPMENT OPERATOR, GRADE 11 5716-11

General: Operate one or more types of engineer equipment to fine grade slopes, inclines, ramps, curves, and excavations by scraping, scooping, rolling, or leveling on rough and rocky terrain or in dense forest areas. Work to fine specifications from grade stakes set by engineers. This type of work is considered to be the most difficult because it is harder to steer and to manipulate the control levers and attachments to reach the exact level of the surface under the most difficult operating conditions.

Skill and Knowledge: The highest skill is required at this level because it is harder to grade to fine specifications on more difficult terrain than it is on flat or rolling terrain as described at the grade 10 level. Greater skill is required to maintain the fine grade because the vehicle is subject to sudden lateral movement. Greater knowledge of surface conditions is required because subsurfaces frequently change in hilly terrain or weather conditions may alter the soil composition which may require a change of attachments or an alternate approach to meet the changing conditions. This is more difficult than the fine grading requirement at the grade 10 level where surface conditions are generally more constant.

Responsibilities: The operators follow oral or written instructions and works without direct supervision. They are responsible for satisfying the fine grade requirement in a minimum amount of time. The responsibility is greater at this level because the requirements are more exact to insure properly banked curves, slopes and shoulders, and drainage features.

Physical Effort: At this level, the operators must change the position of the attachments more often and more rapidly as he adjusts to the changing conditions of the surface. This is more tiring than the work described at [grade 10](#) where attachments remain in a set position for longer periods of time.

Working Conditions: The operators must pay closer attention to the attachments at this level which allows him less time to concentrate on the speed and direction of the vehicle. As a result, there is more danger of tipping or overturning the vehicle, especially when working on steep banks and side slopes.