Oregon State University OSU
Environmental Health & Safety

Hot Work Equipment
Monthly Inspection Form

The checklist is designed so that a negative answer to a question indicates an area of safety concern. However, it should be emphasized that the checklist is only a guide. Compliance with it does not necessarily assure full compliance with all OSHA Standards for General Industry, 29 CFR 1920.

Your Name print sign date	
Name of Department / Shop	
Type of Equipment Inspected	Equipment Number

Installation and Operation of Oxygen-Fuel Gas Systems for Welding and Cutting - 1910.253

Yes	No	N/A	Date corrected		
__	__	__	_____	1.	Is acetylene generated, piped, or utilized at a pressure of 30 p.s.i. absolute pressure or less? .253(a)(2)
__	__	__	_____	2.	Have personnel in charge of the oxygen or fuel gas supply equipment been instructed and judged competent before being left in charge? .253(a)(4)
__	__	__	_____	3.	Is the gas content of compressed gas cylinders marked with either the chemical or the trade name of the gas? .253(b)(1)(ii) (Also see ANSI Z48.1-1954)
__	__	__	_____	4.	Are cylinders stored away from radiators and other sources of heat? .253(b)(2)(i)
__	__	__	_____	5.	Are cylinders that are stored inside kept in a well-ventilated, dry location at least 20 feet from highly combustible material? .253(b)(2)(ii)
__	__	__	_____	6.	Are cylinders stored in assigned places away from elevators, stairs, or gangways and where they will not be knocked over or damaged? .253(b)(2)(ii)
__	__	__	_____	7.	Are the valves of empty cylinders kept closed? .253(b)(2)(iii)
__	__	__	_____	8.	Are valve protection caps in place and hand-tight except when in use or connected for use? .253(b)(2)(iv)
__	__	__	_____	9.	Are fuel gas cylinders except those in use or attached for use, which are stored inside a building, limited to a total gas capacity of 2,000 cubic feet or 300 pounds of liquefied petroleum gas? .253(b)(3)(i)
__	__	__	_____	10.	Are acetylene cylinders stored valve end up? .253(b)(3)(ii)
__	__	__	_____	11.	If oxygen cylinders are stored in outside generator houses, are they separated from the generator or carbide storage rooms by a gastight, noncombustible partition having a fire - resistance rating of at least one hour? .253(b)(4)(ii)
__	__	__	_____	12.	Are stored oxygen cylinders separated from fuel gas cylinders or combustible material by a minimum of 20 feet, or by a noncombustible barrier at least five feet high with a fire-resistance rating of at least one-half hour? .253(b)(4)(iii)
__	__	__	_____	13.	Are cylinders, cylinder valves, couplings, regulators, hose and apparatus kept free from oily or greasy substances? .253(b)(5)(i)
__	__	__	_____	14.	Do you ensure that cylinders are not dropped, struck, or permitted to strike each other violently? .253(b)(5)(ii)(B)

Yes	No	N/A	Date corrected	
__	__	__	_____	15. Do you ensure that valve-protection caps are not used for lifting cylinders from one vertical position to another? .253(b)(5)(ii)(C)
__	__	__	_____	16. Do you ensure that cylinders which do not have fixed hand wheels, have keys, handles, or nonadjustable wrenches on the valve stems while the cylinders are in service? .253(b)(5)(ii)(E) (NOTE: In multiple cylinder installations only one key or handle is required for each manifold.)
__	__	__	_____	17. Are cylinder valves closed before moving cylinder and when work is finished? .253(b)(5)(ii)(F) & (G)
__	__	__	_____	18. Are cylinders kept away from sparks, hot slag, or flame produced by welding or cutting operations, or are fire-resistance shields provided? .253(b)(5)(ii)(i)
__	__	__	_____	19. Are cylinders placed where they will not become part of an electric circuit? .253(b)(5)(ii)(J)
__	__	__	_____	20. Do you insure that cylinders are not used as rollers or supports, and that only proper tools are used to open cylinder valves? .253(b)(5)(ii)(k) and (q)
				21 Are fuel gas cylinders placed valve end up while in use? .253(b)(5)(iii)(a)
__	__	__	_____	22. Are cylinders with leaky valves or fittings taken outdoors and slowly emptied? .253(b)(5)(iii)(f)
__	__	__	_____	23. Are warning signs posted which prohibit open flame or other sources of ignition near cylinders with leaking fuse plugs or other leaking safety devices, and are the cylinders tagged? .253(b)(5)(iii)(G)

Manifold Systems - 1910.253

__	__	__	_____	24. Do you ensure that oxygen manifolds are not located in an acetylene generator room? .253(c)(2)(ii)
__	__	__	_____	25. Do you ensure that portable outlet headers are used indoors only for temporary service where conditions preclude a direct supply from outlets located on the service piping system? .253(c)(4)(i)
__	__	__	_____	26. Is each outlet on the service piping which supplies a portable outlet header equipped with a readily accessible shutoff valve? .253(c)(4)(ii)
__	__	__	_____	27. Are master shutoff valves for both oxygen and fuel gas provided at the entry end of the portable outlet header? .253(c)(4)(iv)
__	__	__	_____	28. Are portable outlet headers provided with frames to support the equipment securely in the correct operating position? .253(c)(4)(viii)
__	__	__	_____	29. When acetylene cylinders are coupled in a manifold, are flash arresters installed between each cylinder and the coupler block? .253(c)(5)(iii)
__	__	__	_____	30. In service piping systems, are distribution lines installed and maintained in a safe operating condition? .253(d)(3)(i)
__	__	__	_____	31. Are emergency gas cocks or valves provided for all buildings? .253(d)(3)(v)
__	__	__	_____	32. Is underground pipe and tubing and outdoor ferrous pipe and tubing protected against corrosion? .253(d)(4)(i)

Yes No N/A Date corrected

General Requirements - 1910.253

__ __ __ _____ 33. Is flashback protection provided by an approved device that will prevent flame from passing into the fuel gas systems? .253(e)(3)(ii)(C)(3)

__ __ __ _____ 34. Are hoses showing defects repaired or replaced? .253(e)(5)(v)

__ __ __ _____ 35. Are pressure-reducing regulators used only for the gas and pressures for which they are intended? .253(e)(6)(i)

__ __ __ _____ 36. Is the repair of regulators performed by properly instructed, skilled mechanics? .253(e)(6)(ii)

__ __ __ _____ 37. Are gauges on oxygen regulators marked "USE NO OIL"? .253(e)(6)(iii)

__ __ __ _____ 38. Are union nuts and connections on regulators inspected before use to detect faulty seats? .253(e)(6)(iv)

Acetylene Generators - 1910.253

__ __ __ _____ 39. Is ample space provided around the generator for operation and maintenance? .253(f)(3)

__ __ __ _____ 40. Are generators placed where water will not freeze, and is the use of sodium chloride to prevent freezing prohibited? .253(f)(4)(i)(B)

__ __ __ _____ 41. Are portable generators located at a safe distance from the welding position? .253(f)(5)(ii)(E)

__ __ __ _____ 42. Are the walls, floors, and roofs of outside generator houses constructed of noncombustible materials? .253(f)(6)(i)(B)

43 Are exit doors readily accessible in case of emergency? .253(f)(6)(i)(D)

__ __ __ _____ 44. Are generators installed inside buildings enclosed in a separate room? .253(f)(6)(i)(G)

__ __ __ _____ 45. Are the walls, partitions, floors, and ceilings of inside generator rooms of noncombustible construction with a fire-resistance rating of at least one hour? .253(f)(6)(i)(H)

__ __ __ _____ 46. Are generator rooms or buildings well ventilated with vents located at floor and ceiling levels? .253(f)(6)(ii)

__ __ __ _____ 47. Do generator rooms or buildings have natural light during daylight hours or artificial light restricted to electric lamps installed in a fixed position? .253(f)(6)(iv)(A)

__ __ __ _____ 48. Are operating instructions posted in a conspicuous place near the generator or available for ready reference? .253(f)(7)(i)(A)

__ __ __ _____ 49. Is the generator room electrically wired in accordance with 1910.307 (hazardous locations)?

__ __ __ _____ 50. Do you ensure that the water-carbide residue mixture drained from the generator is not discharged into sewer pipes or stored in areas near open flames? .253(f)(7)(i)(D)

__ __ __ _____ 51. Do you ensure that calcium carbide is kept in metal packages strong enough to prevent rupture? .253(g)(1)(i)

Yes No N/A Date corrected

Acetylene Generators - 1910.253 (cont)

__ __ ___ _____ 52. Are the packages marked "Calcium Carbide - Dangerous If Not Kept Dry"? .253(g)(1)(ii)

__ __ ___ _____ 53. Do you ensure that the calcium carbide stored indoors does not exceed 600 pounds and that the storage area is dry, waterproof, and well-ventilated? .253(g)(2)(i)

__ __ ___ _____ 54. Are carbide containers that are stored outside periodically examined for conditions that could affect water or air tightness? .253(g)(3)(ii)

Application, Installation and Operation of Arc Welding and Cutting Equipment - 1910.254

__ __ ___ _____ 55. Have employees who are designated to operate arc welding equipment been properly instructed and qualified? .254(a)(3)

__ __ ___ _____ 56. Are open circuit (no load) voltages of arc welding and cutting machines as low as possible, consistent with satisfactory welding? .254(b)(3)

__ __ ___ _____ 57. When open circuit voltages must be higher, are means provided to prevent the operator from making accidental contact with the higher voltages? .254(b)(3)(iii)

__ __ ___ _____ 58. Is control apparatus enclosed on all types of arc welding machines? .254(b)(4)(ii)

__ __ ___ _____ 59. Are terminals for welding leads protected from accidental electrical contact by personnel or metal objects? .254(b)(4)(iv)

__ __ ___ _____ 60. Do you ensure that no connections for portable control devices, such as push buttons carried by the operator, are connected to an a.c. circuit of higher than 120 volts? .254(b)(4)(v)

__ __ ___ _____ 61. Is the frame or case of the welding machine effectively grounded and the grounding checked? .254(c)(2)(i) and (d)(3)

__ __ ___ _____ 62. Is a separate disconnecting switch or controller provided at or near each welding machine? .254(c)(3)(i)

__ __ ___ _____ 63. Are electrode holders placed so that they cannot make electrical contact with persons, conducting objects, fuel, or compressed gas tanks? .254(d)(7)

__ __ ___ _____ 64. Has the operator been instructed to report any equipment defect or safety hazard to his supervisor, and is use of the equipment discontinued until repaired by qualified personnel? .254(d)(9)(i)

__ __ ___ _____ 65. Are work and electrode lead cables frequently inspected for wear and damage, and are cables with damaged insulation or exposed bare conductors replaced? .254(d)(9)(iii)

Installation and Operation of Resistance Welding Equipment - 1910.255

__ __ ___ _____ 66. Have personnel who are designated to operate resistance welding equipment been properly instructed and judged competent to operate such equipment? .255(a)(3)

__ __ ___ _____ 67 Are all doors and access panels of all resistance welding machines and control panels kept locked and interlocked? .255(b)(3)

Yes	No	N/A	Date corrected	
__	__	__	_____	68. Has a shield guard of safety glass or suitable fire-resistant plastic been installed at the point of operation? .255(b)(5)
__	__	__	_____	69. Are foot switches guarded to prevent accidental operation of the machine? .255(b)(6)
__	__	__	_____	70. Are two or more safety emergency stop buttons provided on all special, multispot welding machines, including 2-post and 4-post weld presses? .255(b)(7)
__	__	__	_____	71. Are flash welding machines equipped with hoods to control flying flash? .255(d)(1)
__	__	__	_____	72. Are periodic inspections of the machines made by qualified maintenance personnel, and are records of the inspections maintained? .255(e)

Fire Prevention and Protection – 1910.252

__	__	__	_____	73. Is suitable fire extinguishing equipment maintained in a state of readiness for instant use? .252(a)(2)(ii)
__	__	__	_____	74. Are fire watches on duty whenever welding or cutting is performed in locations where a major fire might develop? (See conditions listed) .252(a)(2)(iii)(A)
__	__	__	_____	75. Before cutting or welding is permitted, is the area inspected by the individual responsible for authorized cutting and welding operations? .252(a)(2)(iv)
__	__	__	_____	76. Where practicable, are all combustibles relocated at least 35 feet from the work site? .252(a)(2)(vii)
__	__	__	_____	77. Does management recognize its responsibility for the safe usage of cutting and welding equipment on its property? .252(a)(2)(xiii)
__	__	__	_____	78. Do supervisors recognize their responsibilities in the safe management of welding and cutting operations as defined in .252(a)(2)(xiv)(A)?

Protection of Personnel – 1910.252

__	__	__	_____	79. Are welders or helpers who are working on platforms, scaffolds, or runways protected against falling by railings, safety belts or lifelines? .252(b)(1)(i)
__	__	__	_____	80. Is welding cable and other equipment kept clear of passageways, ladders, and stairways? .252(b)(1)(ii)
__	__	__	_____	81. Are helmets, hand shields and goggles worn during all arc welding or cutting operations? .252(b)(2)(i)(A)
__	__	__	_____	82. Has a hazard assessment been performed to determine if hazards are present or likely to be present? .132(d)(1)
__	__	__	_____	83. Are employees who are exposed to the hazards created by welding, cutting, or brazing operations protected by personal protective equipment as required by 1910.132 and 1910.252(b)(3)?
__	__	__	_____	84. When welding or cutting is being performed in any confined space, are gas cylinders and welding machines left outside? .252(b)(4)(iii)
__	__	__	_____	85. Before operations are started, is heavy, portable, wheel-mounted equipment securely blocked to prevent accidental movement? .252(b)(4)(iii)

Yes No N/A Date corrected

Health Protection and Ventilation – 1910.252

__ __ __ _____ 86. Where a welder must enter a confined space through a manhole or other small opening, have means been provided for his quick removal in case of emergency? .252(b)(4)(iv)

__ __ __ _____ 87. Are ventilation or respiratory protective devices provided where necessary and do they meet the equivalent requirements of .252(c)(4)(i), (ii), (iii), (iv) and (v)?

__ __ __ _____ 88. Are employees trained to render first aid, and is first aid equipment available at all times? .252(c)(13)

Ventilation Requirements for Welding and Cutting – 1910 Standards

Metal Compound	Requirements Confined Space	Requirements Indoors	Requirements Outdoors
Flourine Compound	Air replacement or airline respirator or self-contained breathing apparatus needed	Air sample tests to determine if exhaust hood, booth, and airline respirator are required	Same as indoors
Lead Zinc (Galvanized Metals)	Air replacement or airline respirator or self-contained breathing apparatus	Exhaust hood or booth	Combination particulate and vapor and gas removing type respirator if tests indicate need
Beryllium	Exhaust hood or booth and airline respirator if air sample tests indicate need	Exhaust hood or booth and airline respirator if air sample tests indicate need	Exhaust hood or booth and airline respirator if air sample tests indicate need
Cadmium Mercury	Exhaust hood or booth and airline respirator if air sample tests indicate need	Exhaust hood or booth and airline respirator if air sample tests indicate need	Combination particulate and vapor and gas removing type respirator if tests indicate need

1. Airline or self-contained breathing apparatus are required in confined areas that are immediately hazardous to life.
2. Local exhaust hoods or booths must provide airflow of 100 linear feet per minute.
3. Mechanical ventilation at 2,000 cubic feet of air per minute per welder is required when welding or cutting on metals other than described above; when there is less than 10,000 cubic feet of space per welder; or where the ceiling height is less than 16 feet; or in confined spaces or where structural barriers (such as partitions or balconies) significantly obstruct cross ventilation. 1910.252(c)(2)(i)(A) through (C).

NOTE: Mechanical ventilation is necessary when an exhaust hood or fixed booth provide for a rate of airflow sufficient to maintain a velocity away from the welder or not less than 100 linear feet per minute.