



WeldingTrainer.com

Maintenance Welding Training

at your site using your equipment, custom-designed training for your needs



by [Anthony Stampe](#)

welding, metallurgy & safety training for maintenance personnel

HOME

Welding Processes

Cutting Processes

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Training to improve skills, operate safely or just "brush up" on any maintenance welding or cutting process

[SMAW / "Stick"](#)



[GTAW / TIG](#)



[GMAW / MIG](#)



[FCAW-s & -g/ flux core](#)



Cutting process training also available (see menu or [click here](#))

On-site (your facility) or on-location (neutral site, classroom only).

Either way, I come to you.

www.weldingtrainer.com

Welcome to Maintenance Welding & Safety



Featuring welding
industry-produced
training materials
from:



Welding
Safety Series



Oxy-Fuel
Safety Series



Maintenance Welding

PROCESSES

For our purpose: The arc welding processes most commonly used for weld repairs & surfacing in maintenance shops throughout the country.

✓ **SMAW / stick**

✓ **GTAW / TIG**

✓ **GMAW / MIG**

✓ **FCAW / flux core**



Maintenance Welding

the "unsexy" side of welding

Welding that is often performed in less-than-ideal conditions, including:

- Contaminated metals
- Out-of-position
- Dissimilar steels
- Field repairs (wind, rain, cold)
- Difficult to weld metals



www.weldingtrainer.com



Student/Reference Manuals

110—180 pages of articles, charts, powerpoints , etc.

Maintenance Welding Student/Reference Manual



Arc Welding Process Training
Oxy-Fuel Cutting & Safety
Practical Metallurgy 1
Welding Safety
October 6-7, 2021

Presented by



Maintenance Welding Student/ Reference Manual



Arc Welding Process Training
► SMAW, GMAW, FCAW
Oxy-Fuel Safety
Welding Safety
September, 2021

Presented by:

NEBRASKA
Good Life. Great Journey.
DEPARTMENT OF TRANSPORTATION

and

N
LTAP

Pre-Quiz

- What do you know about welding?
 - Collusion encouraged

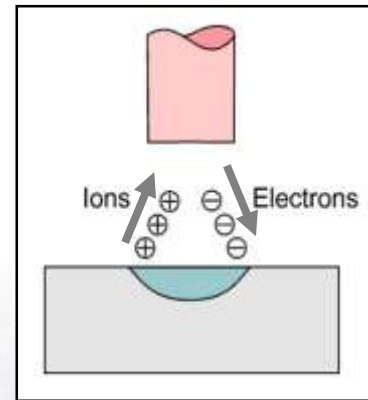


don't be these guys

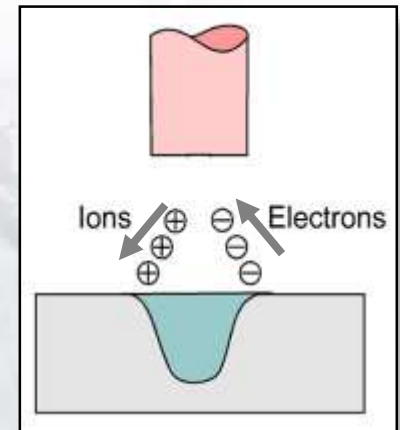
Basic Electricity

- Voltage – The electrical potential or pressure that causes current to flow
 - *Measured in Volts*
- Current – The movement of charged particles in a specific direction
 - *Measured in Amps*
 - *Direct or Alternating*
- Polarity
 - **DC-** (*Direct Current Electrode Negative*)
 - **DC+** (*Direct Current Electrode Positive*)

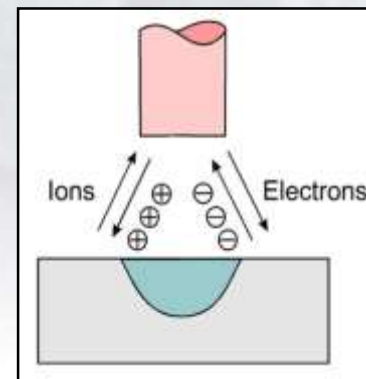
DC -



DC+



AC



- Protect yourself and others from potential hazards including:
 - *Fumes and Gases*
 - *Electric Shock*
 - *Arc Rays*
 - *Fire and Explosion Hazards*
 - *Noise*
 - *Hot objects*

Lincoln Safety [Intro](#). (0:36)



- Electric shock can kill
- Do not touch live electrical parts
 - *Primary Voltage – 230, 460 volt input power*
 - *Secondary Voltage – 6 to 100 volts for welding*
- Insulate yourself from work and ground
- Follow all warnings on welding equipment



Lincoln Safety Module 1:
Electric Shock (3:30)

Fumes and Gases



Lincoln Safety Module 2:

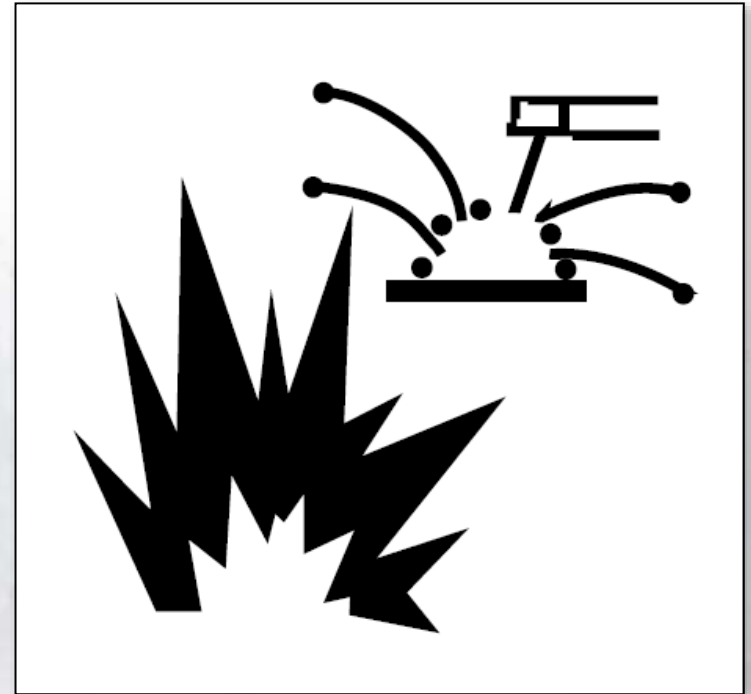
Fumes & Gases < 8 min. total

- Fumes and gases can be hazardous to your health
- Keep your head out of the fumes
- Use enough ventilation, exhaust at the arc, or both, to keep fumes and gases from your breathing zone and the general area
- See product labeling and MSDS for ventilation and respirator requirements

Ventilation 3:56-7:45

Fire and Explosion Hazards

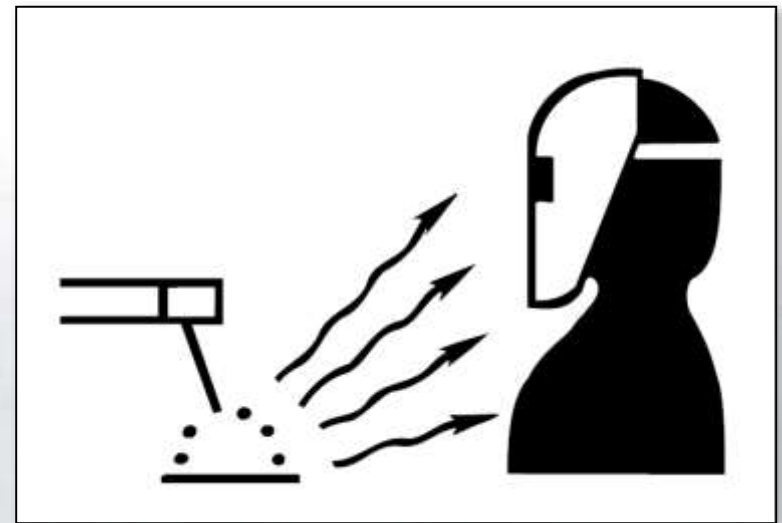
- Welding sparks can cause fires and explosions
- Sparks and spatter from the welding arc can spray up to 35 feet from your work
- Flammable materials should be removed from the welding area or shielded from sparks and spatter
- Have a fire extinguisher ready
- Inspect area for fires **30 minutes** after welding



Lincoln Safety Module 3:
Fire & Explosions 7+ min.

Arc Rays

- *Arc rays can injure eyes and burn skin*
- *The welding arc is brighter than the sun*
- *Precaution must be taken to protect your eyes and skin from UV radiation*
- *Wear correct eye and body protection*

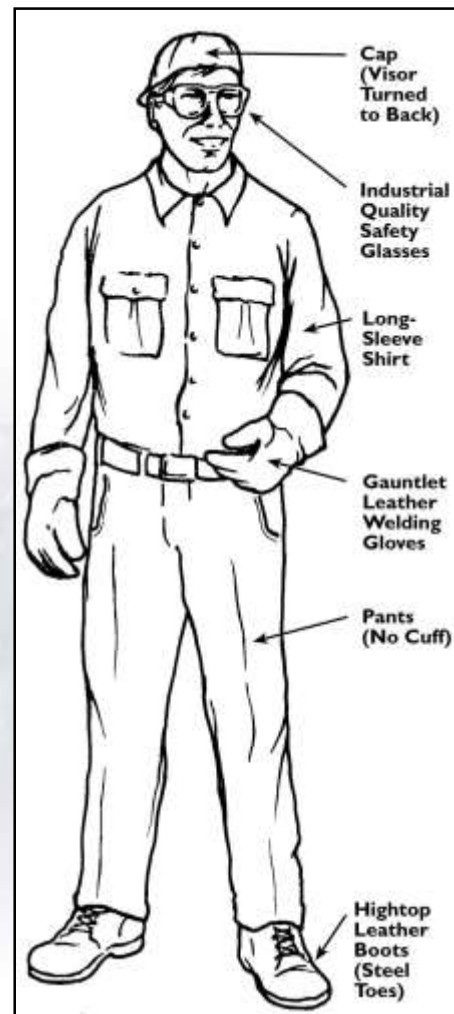


Lincoln Safety Module 4:
PPE 9:17

Protective Clothing

Welders must wear protective clothing for

- *Protection from sparks, spatter and UV radiation*
- *Insulation from electric shock*
- Protective clothing includes ...
 - *Fire-proof clothing without rolled sleeves, cuffs or frays*
 - *Work boots*
 - *Welding gloves, jackets, bibs, and fire-proof pants*
 - *Welding cap, helmet and safety glasses*
 - *Ear protection – ear plugs and muffs*





Ogallala, NE

Classroom instruction where we watch videos showing how, before doing it.
Safety focus

West Jordan, UT
Learning to speak “welder”
(terminology)

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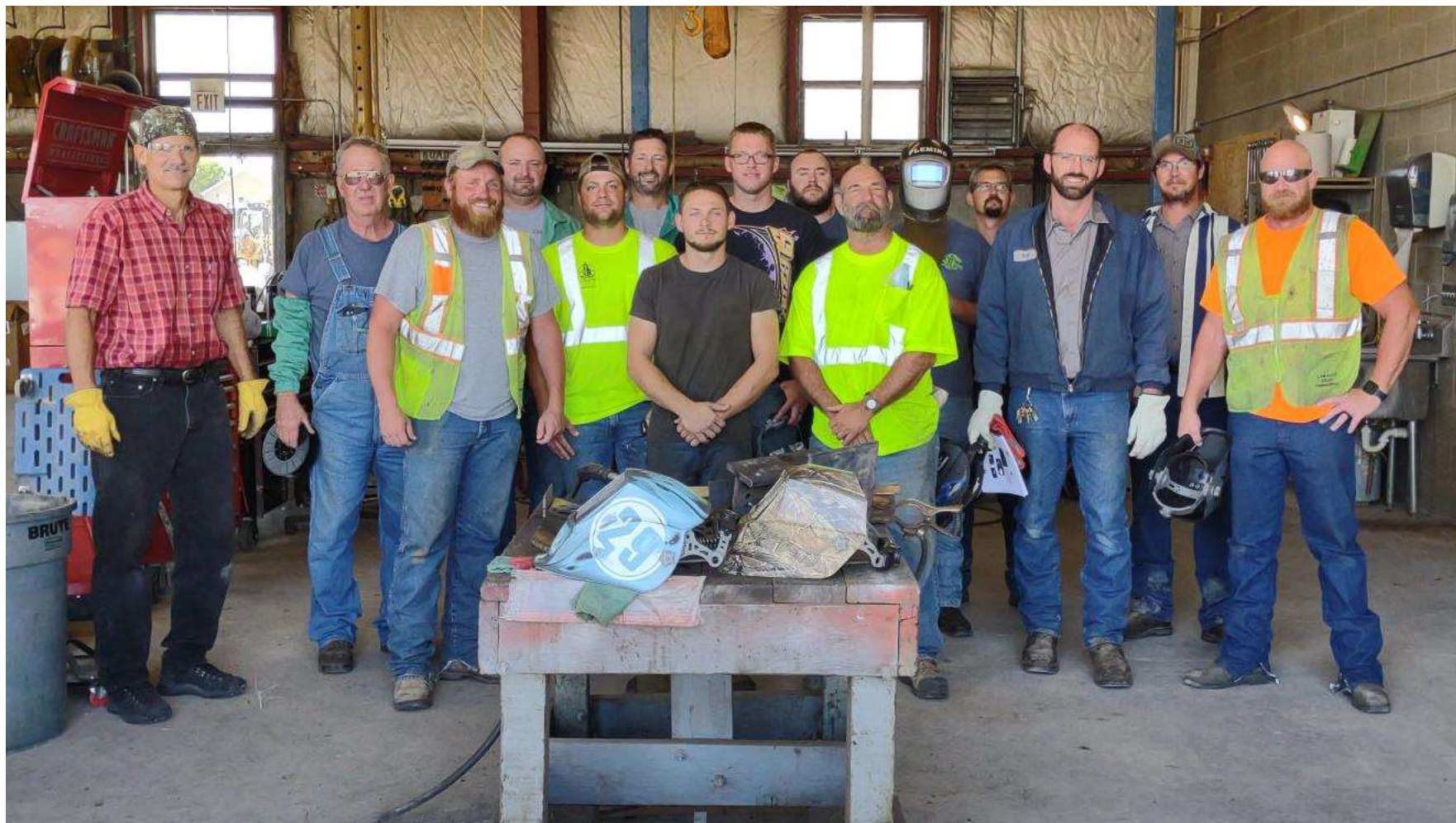
[MIG basics clip](#) (1:40)

Rudolph?? →

Emporia, KS 10/2/19



Lincoln, NE 9/16/21



Danbury, CT 9/21-22/21



West Jordan, UT 10/6-7/21



Plasma Cutting

Hypertherm

Plasma Cutting Technology: Theory and Practice

Session 3: Overview of a Plasma System



Thermal Lance



Oxy-Fuel Cutting & Heating

- Fuel gasses used
- Cylinder safety practices
- Equipment
- Safety gear
- Alternative Fuels
- Victor Technologies Safety Checklists



Cylinder ^{un-}Safety



This was an accident that occurred in Russia. Russians have dash cams in order to provide additional evidence in court, to guard against police corruption and insurance fraud.

Highway to
[Hazmat] Hell
(3:40)



Acetylene Cylinder

Cut-away view of inside of the cylinder showing type of valve, felt pad in neck & agamassan material that is saturated with acetone.



Oxy-Fuel Safety

A big thank you to Victor Technologies for the well-produced Oxy-Fuel Safety video training program included here.



INNOVATION TO SHAPE THE WORLD



[Victor Oxy-Fuel Safety video](#)



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