

# Safety

- Today:
- Ch 11 – safety questions at end of chapter
  - Written on lined paper or typed and emailed to me as a document. [mholbrook@deltalearns.ca](mailto:mholbrook@deltalearns.ca)
    - subject: Block A Safety Questions
- Full sentence answers – should include the question in it.
  - Or write out the full question and then your answer.

# Safety



# Safety

- It's your responsibility

# Compressed Air -150psi

- Use caution when coupling and disconnecting hoses.



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- pressure damage.

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- Be careful when using around eyes - flying particles.

# Compressed Air -150psi

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- Do not use it to blow off skin or clothing.
- Use caution when using it around your ears - pressure damage.
- Be careful when using around eyes - flying particles.
- **USE EYE PROTECTION WHENEVER YOU ARE UNSURE DANGER EXISTS**
- <https://youtu.be/3IZQbUjrI2U> - human balloon
- <https://youtu.be/NxA6kluz5-k> - idiots
- [https://youtu.be/g99a1c\\_FlpU](https://youtu.be/g99a1c_FlpU) - safety video



# Major Equipment

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- Do not use equipment that you have not had instruction in its use.
- Use all safety devices provided with each piece of equipment.

# Electrical Equipment

- Do not use electrical equipment that has a frayed or damaged cord.



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- Make sure all electrical equipment is off before you plug it in.

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- Do not play with drop cords.

# Electrical Equipment

- (Con' t )Do not play with drop cords.
- Do not overload power tools.



# Electrical Equipment

- (Con' t )Do not play with drop cords.
- Do not overload power tools.
- Use caution with trouble lights - electrically hot socket; may break and start fire if contacted with gas.

# Electrical Equipment

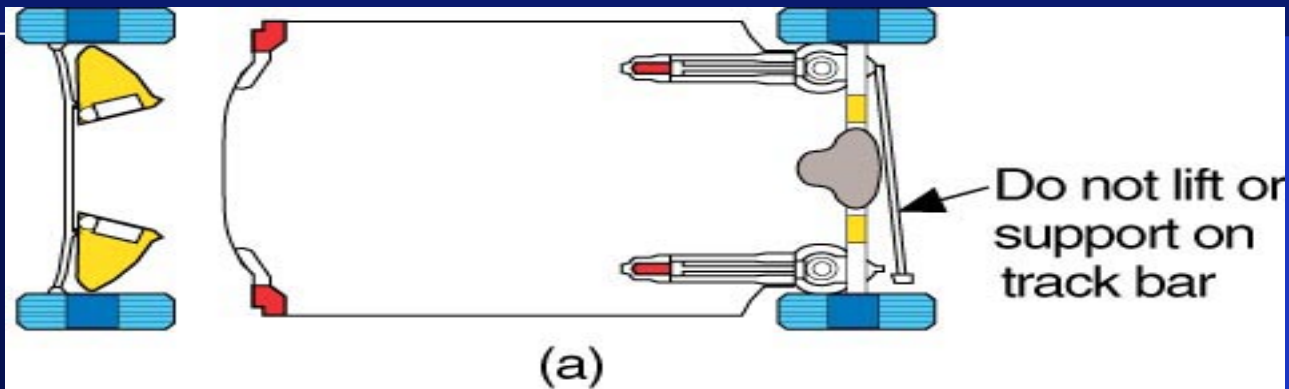
- (Con' t )Do not play with drop cords.
- Do not overload power tools.
- Use caution with trouble lights - electrically hot socket; may break and start fire if contacted with gas.
- Unplug by pulling on plug, not the cord.

# Jacks and Safety Stands

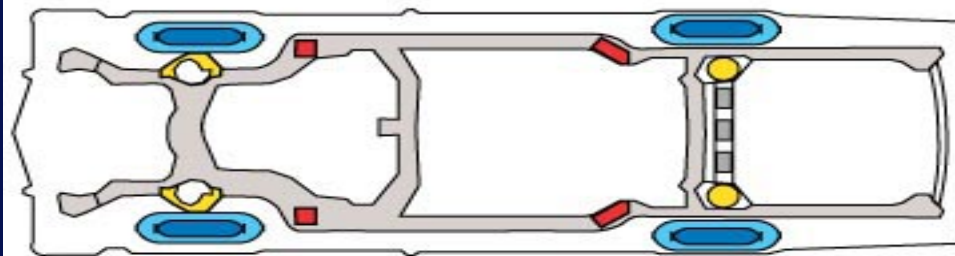
- Always use safety stands when working on a raised vehicle.



# Typical Lifting Points



- Drive-on lift
- Frame engaging lift
- Two-post suspension lift



(b)

- Drive-on lift
- Two-post suspension lift
- Frame engaging lift

# Jacks and Safety Stands

- Always use safety stands when working on a raised vehicle.
- Make sure jacks are properly located before lifting.



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- Always use safety stands when working on a raised vehicle.
- Make sure jacks are properly located before lifting.
- Do not lock wheels when using a floor jack.

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- Always use safety stands when working on a raised vehicle.
- Make sure jacks are properly located before lifting.
- Do not lock wheels when using a floor jack.
- Never use concrete blocks as supports for a car.



# Four Post Hoists

- Block wheels.





# Four Post Hoists

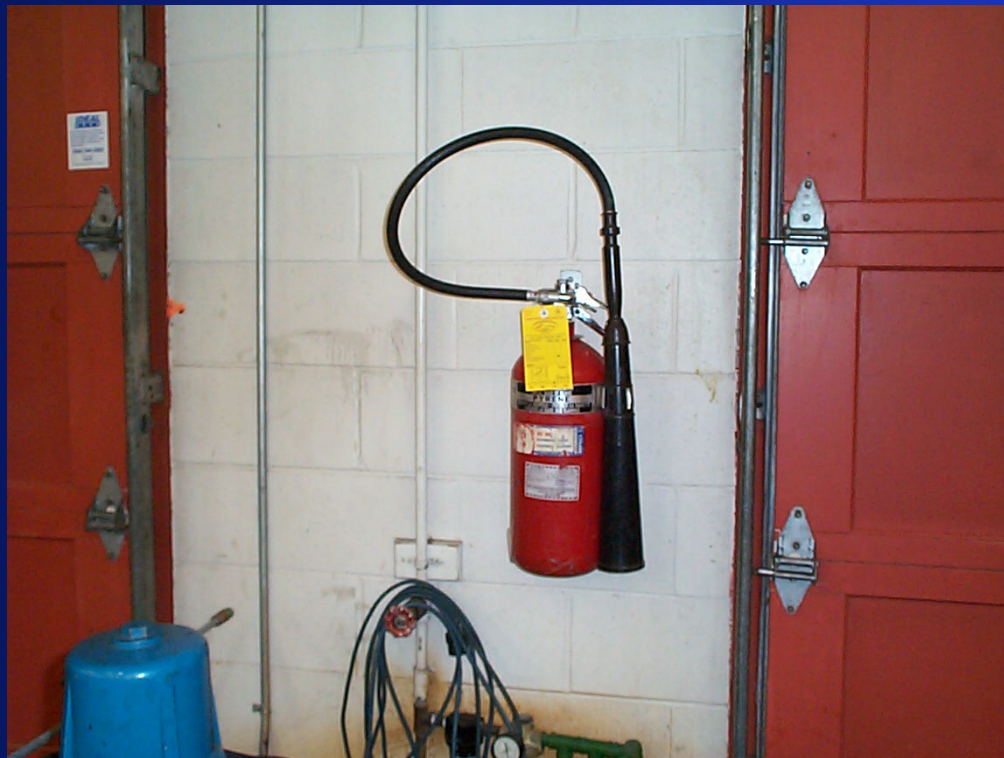
- Block wheels.
- Make sure lift bars and blocks are properly located before you enter the “wheel free” position.

# Four Post Hoists

- Block wheels.
- Make sure lift bars and blocks are properly located before you enter the “wheel free” position.
- Be sure both end-locks release before lowering a car from the wheel free position.

# Fire Danger and Safety

- Know where the fire extinguishers are located and know how to use them.  
Video: “How to Use a Fire Extinguisher”



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- Students should use the extinguishers if the need arises.

# Fire Danger and Safety

- Know where the fire extinguishers are located and know how to use them.
- Students should use the extinguishers if the need arises.
- Do not use CO<sup>2</sup> extinguishers for a person on fire.
- Use a fire blanket on a person.

# Fire Danger and Safety

- (Con' t) Use a fire blanket on a person..
- Do not put water on a gasoline fire.

# Fire Danger and Safety

- (Con' t) Use a fire blanket on a person..
- Do not put water on a gasoline fire.
- Do not put water on an electrical fire.

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- (Con' t) Use a fire blanket on a person..
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- Change out of gasoline/oil soaked clothing.



# Fire Danger and Safety

- (Con' t) Use a fire blanket on a person..
- Do not put water on a gasoline fire.
- Do not put water on an electrical fire.
- Change out of gasoline/oil soaked clothing.
- Keep coverall clean to prevent spontaneous combustion fires.

# Fire Drill Procedures

- Pull alarm by hallway door.

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- Leave area by large shop doors or by hallway door.
- Assemble on lower field, keep together for attendance.

# Fire Hazards 1

- Do not use gasoline as a solvent.

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- Do not use gasoline as a solvent.
- Use a solvent/varsol as a cleaning agent.



# Fire Hazards 1

- Do not use gasoline as a solvent.
- Use a solvent/varsol as a cleaning agent.
- Only store gasoline in approved containers and in small quantities.





# Fire Hazards 2

- Use caution when transferring gasoline.
- Videos:
  - Gas station fire
  - Cell phone static electricity fire

# Fire Hazards 2

- Use caution when transferring gasoline.
- Do not weld on a vehicle with a damp or leaking fuel line or fuel tank.

# Fire Hazards 2

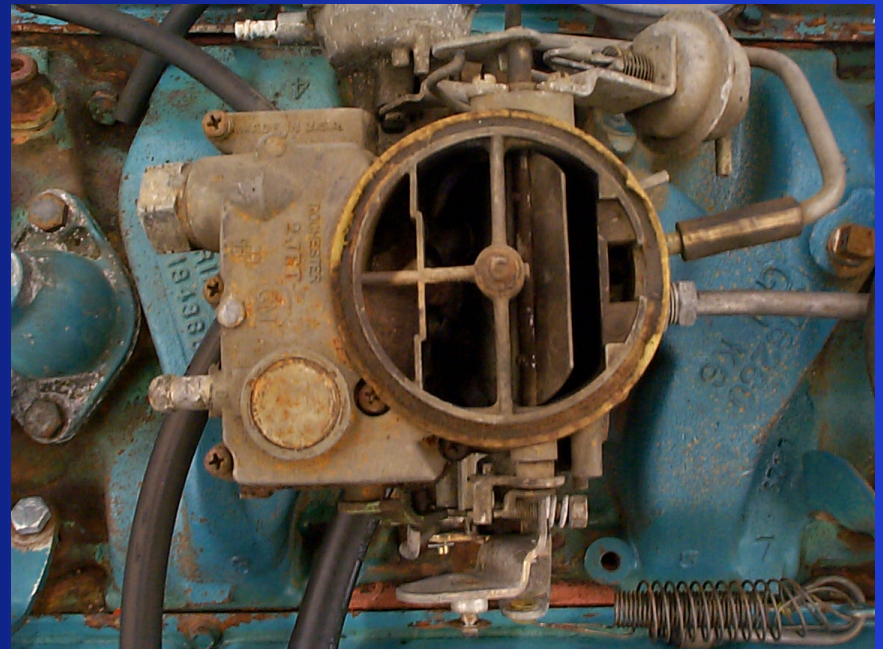
- Use caution when transferring gasoline.
- Do not weld on a vehicle with a damp or leaking fuel line or fuel tank.
- Never start a gasoline siphon with your mouth.

# Fire Hazards 3

- Never add fuel to an engine while cranking.

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- Never add fuel to an engine while cranking.
- Never look down a carburettor if the car is running.
- Video: carburettor spitting fire



# Fire Hazards 3

- Never add fuel to an engine while cranking.
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- Keep oily rags (coveralls in fire proof containers).

# Fire Hazards 3

- Never add fuel to an engine while cranking.
- Never look down a carburettor if the car is running.
- Keep oily rags (coveralls in fire proof containers).
- Remember that varsol will burn.

# Battery Safety

- Keep all sparks and/or flames away from hydrogen gas which is produced by a charging battery.



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- Always have the battery charger unplugged prior to connecting or disconnecting it.
- Do not use top of battery as a tool storage.
- <https://youtu.be/PV5oLPLUzrM?t=3m41s>

# Battery Safety

- Keep all sparks and/or flames away from hydrogen gas which is produced by a charging battery.
- Always have the battery charger unplugged prior to connecting or disconnecting it.
- Do not use top of battery as a tool storage.
- Use proper method for connecting or disconnecting a battery charger, jumper cables and battery cables.

# Battery Safety 2

- Keep battery acid away from clothes, skin and vehicle paint.
- What to do if battery explodes.
  - Get the person to sink and wash and rinse skin and/or eyes
  - Wash vehicle with water

# Battery Cables

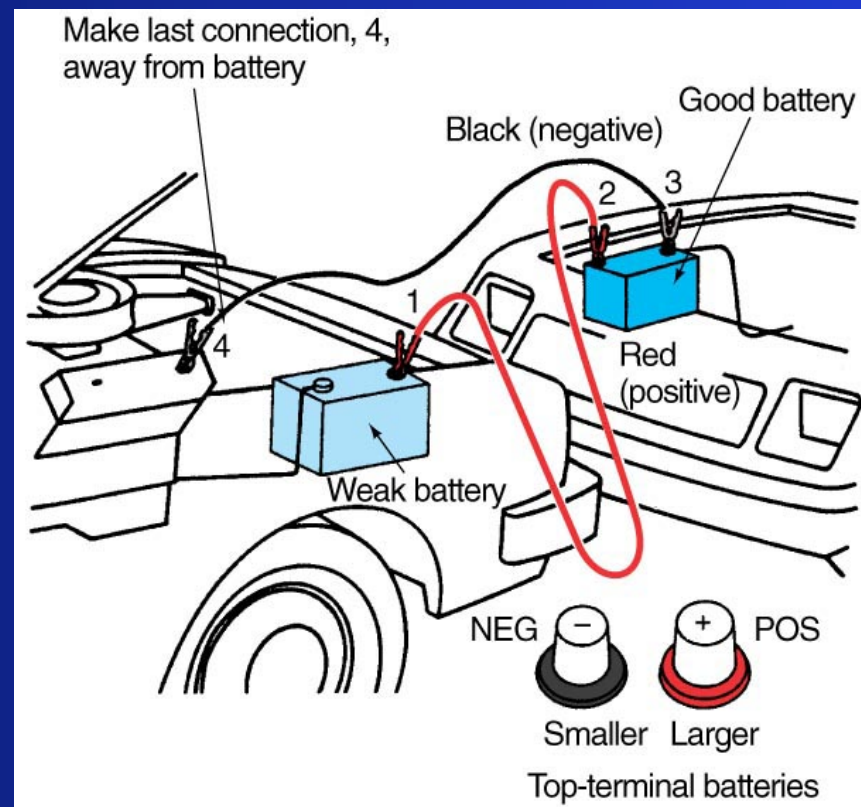
- *\*Always\** disconnect the *\*ground (-)\** cable first..
- *\*Connect \** the ground cable *\*last\**.

# Battery Jumper Cables

- \*Connect\* jumpers to dead battery.
- (Red = +, Black = -)
- \*Connect\* other end (red lead = +) of good battery and (black = -) to engine block or frame of vehicle with good battery.

# Jump Starting

1. Positive of weak battery
2. Positive of good battery
3. Negative of good battery
4. Connect to engine ground



- 
- Battery video:

<https://youtu.be/I0utNemFsl8>

Jump Start a Car with AA Batteries



# Carbon Monoxide

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- Always use an exhaust hose between vehicle and evacuation system..



# Carbon Monoxide

- Is a gas which is colourless, odourless and DEADLY!
- Always use an exhaust hose between vehicle and evacuation system.
- Always make sure the evacuation system is turned on.

# Grinder/Wire Wheel

- Always wear eye protection.



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- Use hand protection (leather gloves).

# Grinder/Wire Wheel

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- Always keep tool rest adjusted close as possible.
- Hold small parts with vise grips.
- Use hand protection (leather gloves).
- Stand to one side when starting the grinder



- 
- Bench Grinder Safety Video
  - <https://youtu.be/iaoVqUpOrPs>
  - Grinder & Abrasive Wheel Gory Safety.mp4

# General Shop Safety

- Never disconnect air conditioning lines.
  - <http://www.cbc.ca/news/canada/windsor/windsor-business-fined-80k-for-discharging-r-22-refrigerant-1.3170985>
  - Maximum \$ 32,500 per incident per day. With a \$10,000. bounty for reporting it
- Freeze you on contact

# General Shop Safety

- Never disconnect air conditioning lines.
- Keep floors clean.



# General Shop Safety

- Never disconnect air conditioning lines.
- Keep floors clean.
  - Squeegee water away
  - Put sawdust on oils
  - Keep parts and tools off floor
  - Keep equipment in their storage area
  - Keep area as clean as possible.

# General Shop Safety 2

- Drive slowly in and out of the shop.
  - Have window open (hear instructions)
  - No radios at any time

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- Drive slowly in and out of the shop.
  - Have window open (hear instructions)
  - No radios at any time
- Do not blow out brake frictional systems with compressed air - asbestos dust can cause lung disease.
  - Use water
  - Use vacuum collection system.

# General Shop Safety 3

- Do not wear jewelry in shop - crushed rings, electrical burns and pendants, etc. may get caught.

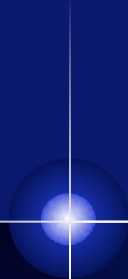
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- Use proper method for lifting heavy loads.
  - Lift with legs
  - Back straight



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- Use proper method for lifting heavy loads.
  - Lift with legs
  - Back straight
- Never spin bearings with compressed air - damages bearings and they may explode or seize up and rip your fingers off.

- 
- MSDS stands for Material Safety Data Sheet
    - Information and procedures about chemicals
  - Spontaneous combustions start with no external source of ignition
  - Water on the floor should be squeegeed down the drain
  - Oil on the floor should be covered with sawdust