

MSA FACILITIES SAFETY AND HEALTH INSPECTION PROGRAM

Abrasive Wheel Machinery



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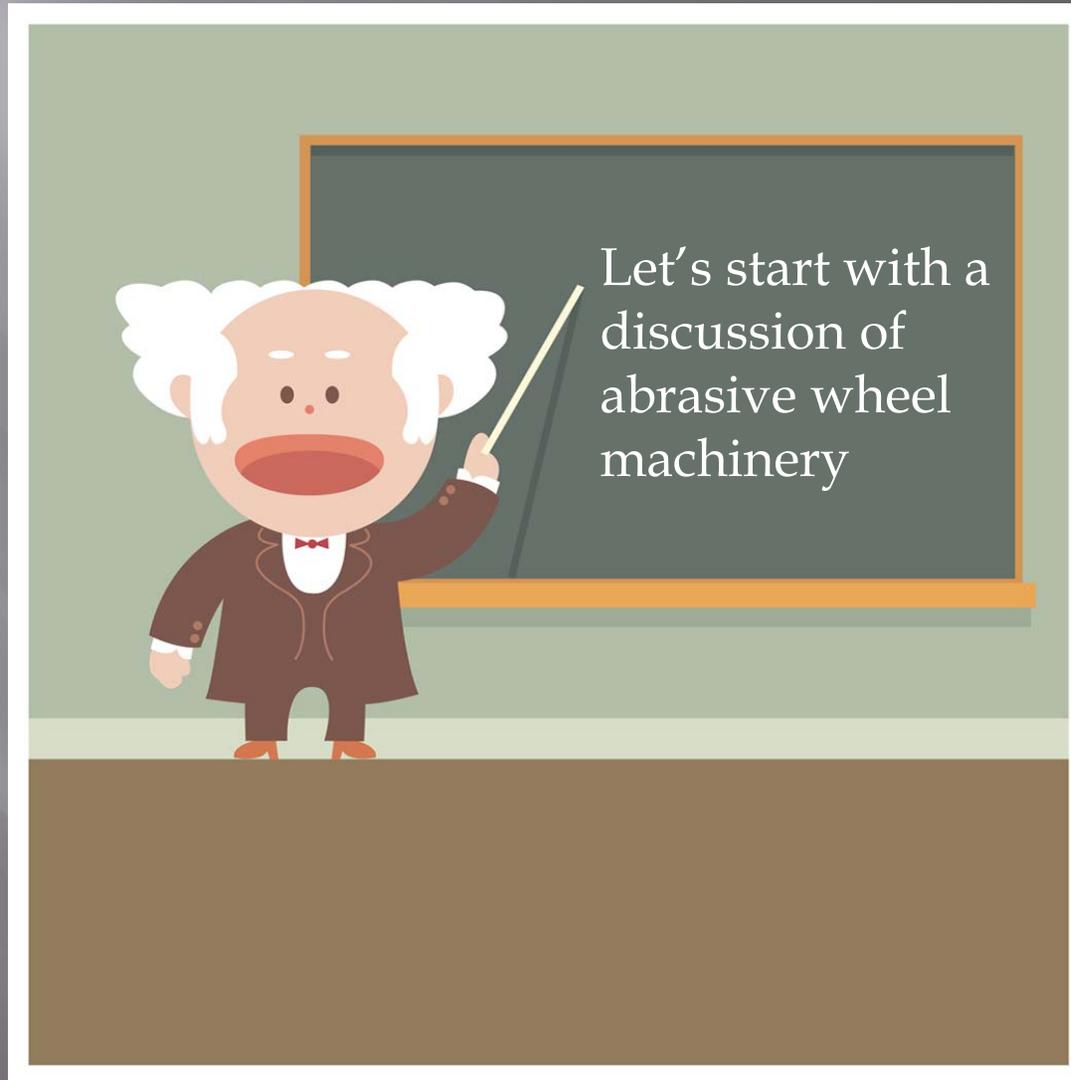
Abrasive Wheel Machinery

At the completion of this unit you shall be able to:

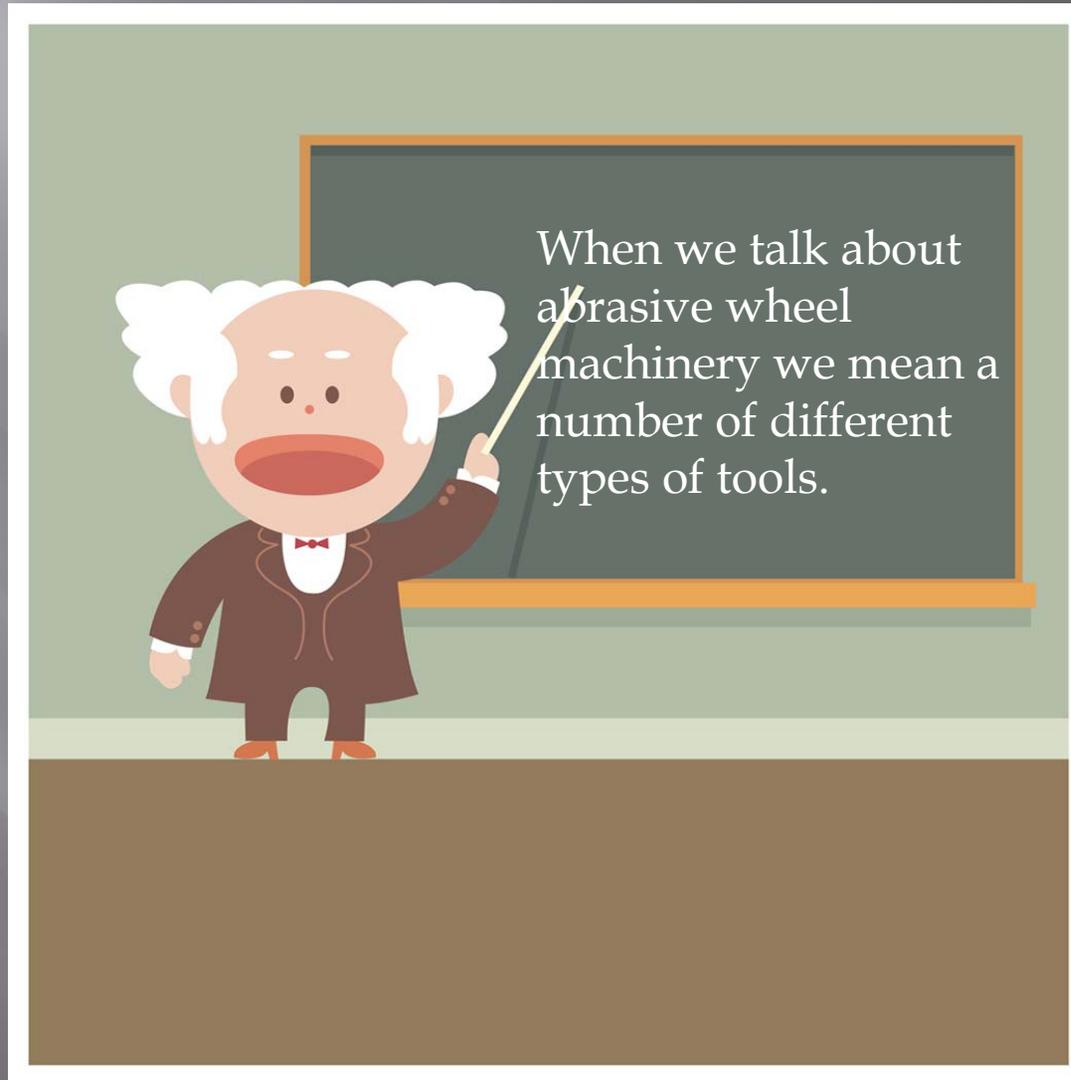
1. Utilize section W of the Safety and Health Hazard Inspection Program Checklist to identify compliant and non-compliant safety behaviors.
2. Identify areas of concern requiring immediate action to mitigate or prevent a possible injury.

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Abrasive Wheel Machinery



Abrasive Wheel Machinery



Abrasive Wheel Machinery



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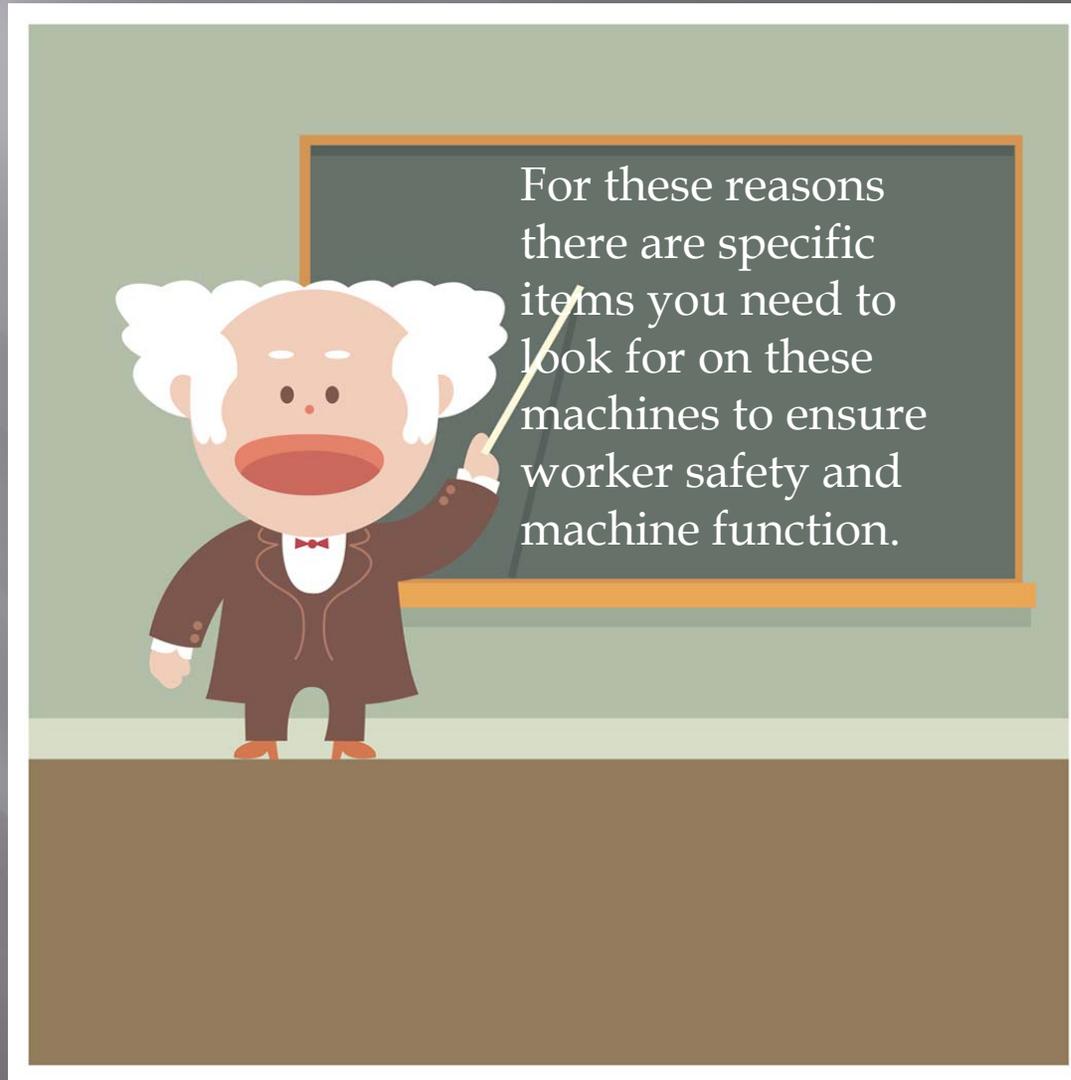


Abrasive Wheel Machinery



A workers hand,
clothing or a tool can
be caught in these
wheels and with the
high speeds involved
can quickly cause an
injury to that worker.

Abrasive Wheel Machinery



Abrasive Wheel Machinery

- Section W of the checklist contains 6 to 7 items that you will need to look at.
- Let's take a closer look at section W.

**MSA GENERAL INDUSTRY-BASED SAFETY AND HEALTH
HAZARD INSPECTION CHECKLIST**

No.	Inspection Observations	Compliant? Y•N•N/A	See Comments (indicate with X)
7	Other.		
T	AIR RECEIVERS		
1	Air receivers and pressure relief valves have an established inspection schedule.		
2	Other.		
U	MATERIAL HANDLING		
1	Sufficient clearance is maintained through doorways and aisles for material handling equipment passage.		
2	Material is stored in a stable and secure manner.		
3	Storage areas are free from tripping and fire hazards.		
4	Other.		
V	MACHINE and MACHINE GUARDING (including exercise equipment)		
1	Guards are securely installed and in place on reciprocating, rotating, and transverse motion parts of equipment.		
2	Fixed machines are anchored to prevent movement.		
3	Saws and cutting blades are properly guarded and have anti-kickback devices.		
4	Power controls are protected from accidental contact, and are within easy reach of the operator.		
5	Fan blades are guarded with material designed to prevent an exposure opening of greater than 1/2 inch.		
6	Other.		
W	ABRASIVE WHEEL MACHINERY		
1	Flanges are in good condition and are of the correct size for wheel mounting.		
2	Safety guards are of the proper size and mounted to maintain proper alignment with the wheel.		
3	Work rests are adjusted to the wheel with a maximum opening of 1/8 inch; tongue guards with a maximum opening of 1/4 inch.		
4	Spark shields are secured in place, clean, and undamaged.		
5	Abrasive wheels are used and maintained in accordance with manufacturer instructions.		
6	Tools/machinery observed in use is being operated safely.		
7	Other.		
X	PORTABLE POWER TOOLS		
1	Protective guards are in place and operable.		
2	Portable electrical appliances, tools, devices and other equipment are Listed/Labeled by an OSHA-recognized nationally recognized testing laboratory (NRTL) or are marked with a label indicating acceptance by the Hanford Site authority having jurisdiction (AHJ).		
3	Attachment plugs and cords are in good condition with no loose or broken prongs and no frayed or cracked insulation.		

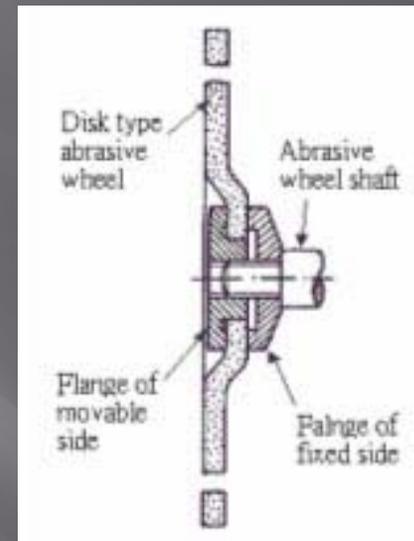
7 A-5004-299 (REV 2)

Abrasive Wheel Machinery

1. Flanges are in good condition and are of the correct size for wheel mounting.
2. Safety guards are of the proper size and mounted to maintain proper alignment with the wheel.
3. Work rests are adjusted to the wheel with a maximum opening of 1/8 inch; tongue guards with a maximum opening of 1/4 inch.
4. Spark shields are secured in place, clean, and undamaged.
5. Abrasive wheels are used and maintained in accordance with manufacturer instructions.
6. Tools/machinery observed in use is being operated safely.
7. Other.

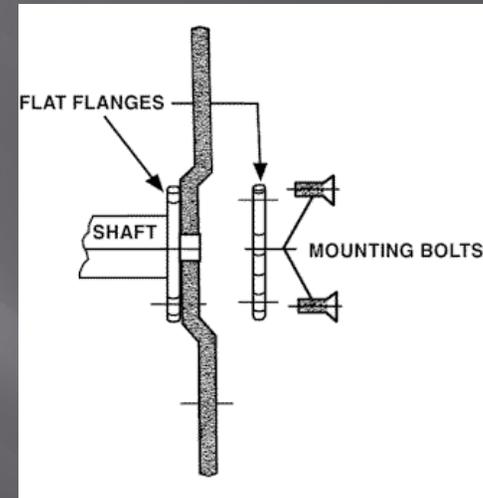
Abrasive Wheel Machinery

1. Flanges are in good condition and are of the correct size for wheel mounting.
- The purpose of this item is to ensure that the flanges that hold the wheel or stones are the correct size for the wheel.
 - An incorrect size could lead to the wheel loosening or if too small breaking.



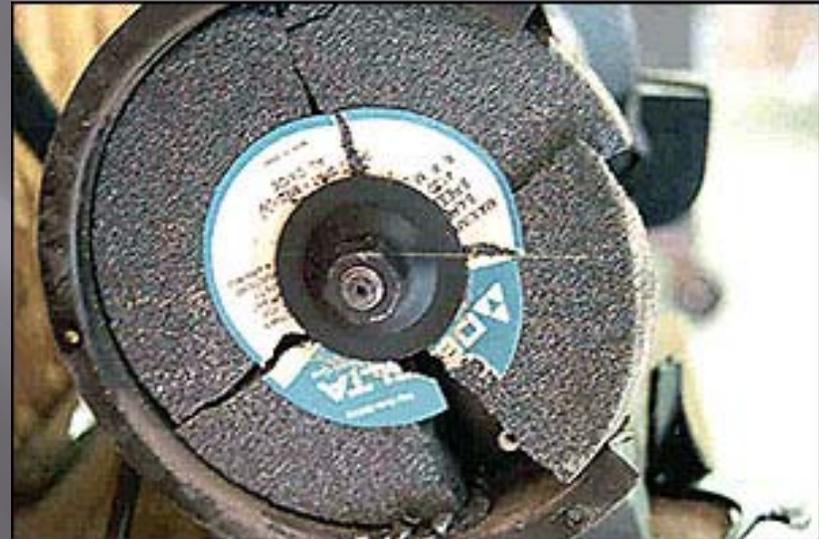
Abrasive Wheel Machinery

1. Flanges are in good condition and are of the correct size for wheel mounting.
- A compliant rating would indicate that the flanges were the correct size.



Abrasive Wheel Machinery

1. Flanges are in good condition and are of the correct size for wheel mounting.
- A non compliant rating would indicate that the flange was either installed incorrectly or was not correct size.
 - This photo is of a wheel that either was over tightened or the flange size was incorrect. It is not a tool you would want to use.



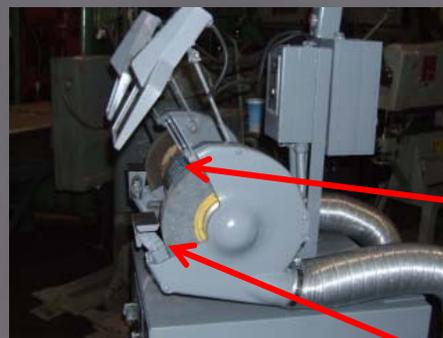
Abrasive Wheel Machinery

2. Safety guards are of the proper size and mounted to maintain proper alignment with the wheel.
- Abrasive wheel machinery must have guards on the wheels. These guards have certain specifications that must be met. Generally guards that are supplied with the machine will meet these requirements.
 - Some of the typical guards that must be on these tools are:
 - Angle Grinders will have a cover on the operator side of the tool, it must be at least approximately 180 degrees and adjust so that an sparks are driven away from the operator.



Abrasive Wheel Machinery

2. Safety guards are of the proper size and mounted to maintain proper alignment with the wheel.
- Some of the typical guards that must be on these tools are:
 - Bench Grinders will have covers on the wheel ends, and the cover will only expose approximately 60 degrees of the stone. . There are additional Rules regarding the tool rest and the guard at the tongue of the wheel that we will cover later.



Tongue Guard

Tool rest

Abrasive Wheel Machinery

2. Safety guards are of the proper size and mounted to maintain proper alignment with the wheel.
- Some of the typical guards that must be on these tools are:
 - Chop saws must have a guard that will cover the majority of the exposed blade. Many times these guards will adjust as the stone comes down and opens up wider as it descends onto the material being cut.



Abrasive Wheel Machinery

2. Safety guards are of the proper size and mounted to maintain proper alignment with the wheel.
- A compliant rating would indicate that the abrasive tool machinery had all guards of the proper size and mounted.



Abrasive Wheel Machinery

2. Safety guards are of the proper size and mounted to maintain proper alignment with the wheel.
- A non compliant rating would mean that the machine was either missing guards or they were inoperable.
 - These **MUST NOT** be used until repaired!



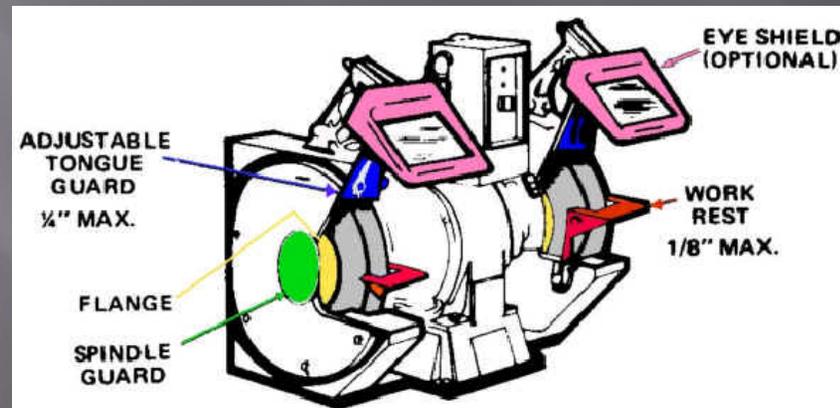
Tongue
Guard
not
Installed



Guard Removed

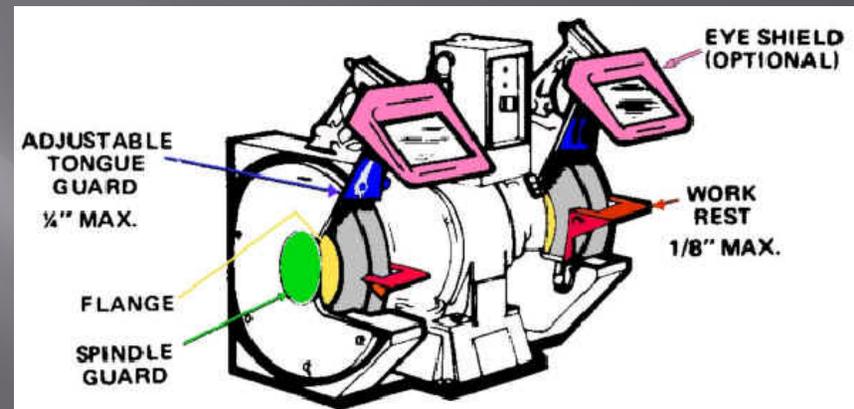
Abrasive Wheel Machinery

3. Work rests are adjusted to the wheel with a maximum opening of 1/8 inch; tongue guards with a maximum opening of 1/4 inch.
- This item addresses one of the most common violations that is found by OSHA. The positioning of the tool rest and the positioning/presence of the tongue guard.
 - These guards prevent the material being ground (or your hand) from being pulled into the wheel or ejecting.
 - Both guards are adjustable since as the stone is used it will lose diameter.



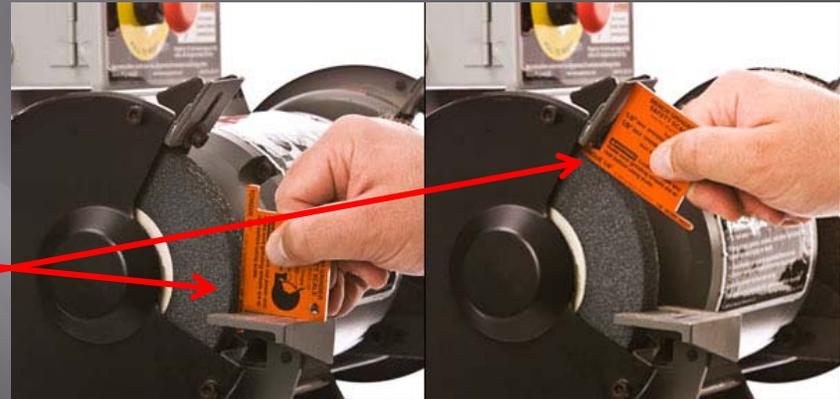
Abrasive Wheel Machinery

3. Work rests are adjusted to the wheel with a maximum opening of 1/8 inch; tongue guards with a maximum opening of 1/4 inch.
- As stated in the item the tongue guard must be within 1/4" of the wheel and the tool rest within 1/8" of the wheel.



Abrasive Wheel Machinery

3. Work rests are adjusted to the wheel with a maximum opening of $1/8$ inch; tongue guards with a maximum opening of $1/4$ inch.
- A compliant rating would indicate that the guards were positioned correctly.
 - The Tool rest at $1/8''$
 - The Tongue at $1/4''$



Abrasive Wheel Machinery

3. Work rests are adjusted to the wheel with a maximum opening of 1/8 inch; tongue guards with a maximum opening of 1/4 inch.

- A compliant rating would indicate that the guards were positioned correctly.
- The Tool rest at 1/8"
- The Tongue at 1/4"
- This spacing can easily be verified with a tape measure or ruler.



Abrasive Wheel Machinery

3. Work rests are adjusted to the wheel with a maximum opening of 1/8 inch; tongue guards with a maximum opening of 1/4 inch.
- A non compliant rating would mean that the guards were not adjusted or were missing.
 - In this case the machine should not be used until repaired/adjusted.



Abrasive Wheel Machinery

4. Spark shields are secured in place, clean, and undamaged.
- This item deals with the presence and condition of the spark shields on the machine.
 - The spark shields are used to shield the operator from the majority of the grit and material that will be released as the machine grinds the material.



Abrasive Wheel Machinery

4. Spark shields are secured in place, clean, and undamaged.
 - ▣ Please note that the presence of the shields does not provide sufficient protection against material flying into the eyes and face of an operator. The user of the machine must still have eye and face protection on to ensure their safety.



Abrasive Wheel Machinery

4. Spark shields are secured in place, clean, and undamaged.
 - ▣ A compliant rating would indicate that the machine had the shields and they were in good order (not excessively fogged, scratched, cracked, or otherwise rendered opaque).



Abrasive Wheel Machinery

4. Spark shields are secured in place, clean, and undamaged.
 - ▣ A non compliant rating would indicate that the team determined that the machine was missing it's shields or the shields were not functional/usable.



Abrasive Wheel Machinery

5. Abrasive wheels are used and maintained in accordance with manufacturer instructions.
- The item is used to discover if the abrasive wheels are used and maintained correctly.
 - In essence a wheel is designed to be only used on specific materials. Many of the wheels on bench grinders are meant for hard metals like steel.
 - Grinding soft metals, plastic, or wood on these wheels can result in failure (explosion) of the wheel.



Abrasive Wheel Machinery

5. Abrasive wheels are used and maintained in accordance with manufacturer instructions.

- ▣ One of the ways to determine if this has happened is to look closely at the wheel.
- ▣ In this case, the shiny specs in the wheel could be an indication of soft metal and would warrant further inspection.



Abrasive Wheel Machinery

5. Abrasive wheels are used and maintained in accordance with manufacturer instructions.

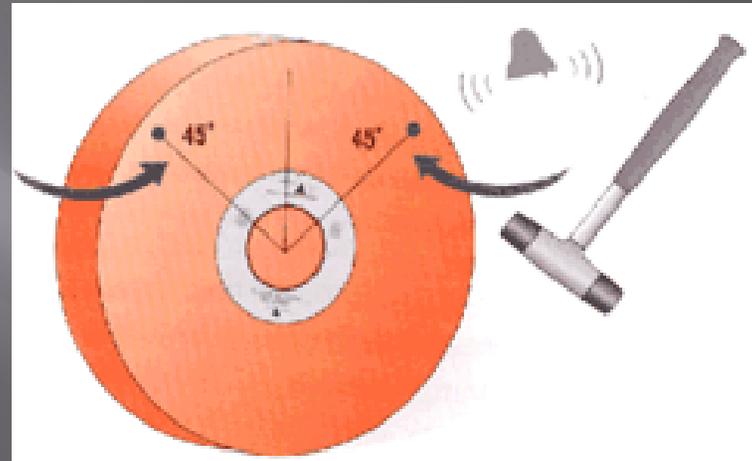
- ❑ One of the ways to determine if this has happened is to look closely at the wheel.
- ❑ In this case, the shiny specs in the wheel could be an indication of soft metal and would warrant further inspection.
- ❑ The other wheel doesn't show any specs and probably is safe.



Abrasive Wheel Machinery

5. Abrasive wheels are used and maintained in accordance with manufacturer instructions.

- ▣ Another test that is possible to do is called a “ring” test.
- ▣ This test is conducted when you gently strike a wheel with a mallet. If the ring is a clear tone then the wheel probably doesn't have any hidden cracks or defects. If you get a “thunk” then the wheel may have a defect that could cause failure.



Abrasive Wheel Machinery

5. Abrasive wheels are used and maintained in accordance with manufacturer instructions.
 - ▣ A compliant rating would indicate that the wheel was used properly and in good shape.



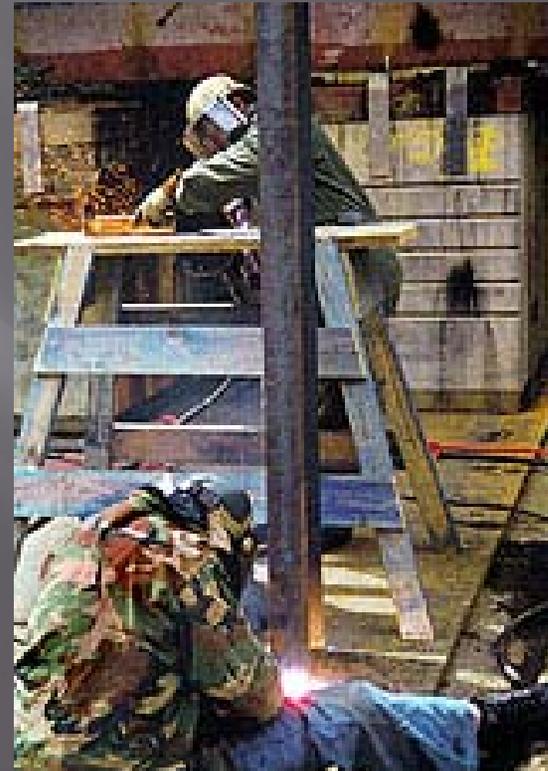
Abrasive Wheel Machinery

5. Abrasive wheels are used and maintained in accordance with manufacturer instructions.
 - ❑ A non compliant rating would mean that the wheels are not used and maintained in accordance with the manufacturers instructions.



Abrasive Wheel Machinery

6. Tools/machinery observed in use is being operated safely.
- The purpose of this item is to observe the behaviors of the user of the abrasive wheels.
 - Are they using them safely? (guards in place, inspected prior to use, etc.)
 - Are they wearing the prescribed PPE? (face/eye shields, etc.)



Abrasive Wheel Machinery

6. Tools/machinery observed in use is being operated safely.
 - ▣ A compliant rating would indicate that the users of these tools were doing so properly and were wearing the correct PPE for the type of tool and hazard involved.



Abrasive Wheel Machinery

6. Tools/machinery observed in use is being operated safely.
 - ▣ A non compliant rating would mean there are issues of not using the equipment safely.



Missing Guard



Barefoot



Inadequate
eye/face
protection

Abrasive Wheel Machinery

- ▣ There are machines that look like abrasive wheel machines but are used for polishing and buffing material. In some cases these buffing wheels look like abrasive wheels, be sure if you suspect touch the wheel (with the machine off!) and see if it is a cloth rather than a stone.



Abrasive Wheel Machinery

6. Tools/machinery observed in use is being operated safely.
- Conversely, since these machines are so similar you could attached an abrasive wheel to them, in which case it would be registered as improper use of the tool and deserve a non compliant rating.



Abrasive Wheel Machinery

- If at any time you have any questions about how to fill out the form or about the items on the form please contact your project OS&H group.

**MSA GENERAL INDUSTRY-BASED SAFETY AND HEALTH
HAZARD INSPECTION CHECKLIST**

Facility: _____	Facility Representative: _____
Date: _____	Team Member: _____
Total Items Reviewed: _____	Team Member: _____
Total Non-Compliant Items: _____	Team Member: _____

No.	Inspection Observations	Compliant? Y·N·NA	See Comments (indicate with X)
A	FIRE PROTECTION INSPECTION <i>(All issues must be observed as applicable see note 2)</i>		
1	Emergency Lights - Each unit must be operable when tested.		
2	Portable Fire Extinguishers (PFE) - Each unit is properly mounted, an inspection tag is in place and reflects through previous month, the pressure gauge is in the "green" zone (where applicable).		
3	PFE is not obstructed, is visible, and the seal is not broken.		
4	Sprinkler Clearance - Clearance between the sprinkler deflector and the top of any storage is 18 inches or greater.		
5	Fire Riser Pressure Gauge Inspection - Inspect gauges to verify pressure to the building and pressure held in the fire system. Typically both gauges will have similar pressure readings.		
6	Fire Risers - Access to fire system sprinkler risers and other system components must be unobstructed.		
7	Fire Riser Valve Inspection - Check all seals, position and supervision for broken seals or possible tampering.		
8	Post Indicating Valve Inspection - This valve will be located outside of the facility. It must be verified that the window on the side of the valve reads "OPEN".		
9	Exit Signs - Exit signs with an internal lighting source must be checked to ensure all lamps are functional. - Exit signs that use Tritium must be observed that they have not been damaged, all applicable labels are present, the sign has not expired, and it is not covered with another sign.		
10	Fire Doors - Identify that fire doors operate freely and latch securely upon closure. Fire doors must not be propped open.		
11	Ceiling Tiles - Where automatic sprinklers are installed drop ceiling tiles are in place. Missing tiles slow response of fire suppression sprinklers.		
12	Manual alarm stations are easily identified and readily accessible.		
13	Other.		
B	GENERAL SAFE BEHAVIORS		
1	Employees are taking the necessary safety precautions for the work being performed.		
2	Work is being performed such that collocated employees in the area are not exposed to occupational hazards or unsafe conditions.		

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A-6004-299 (REV 2)

Abrasive Wheel Machinery

Thank you for your time
and desire to help us have
a safer workplace