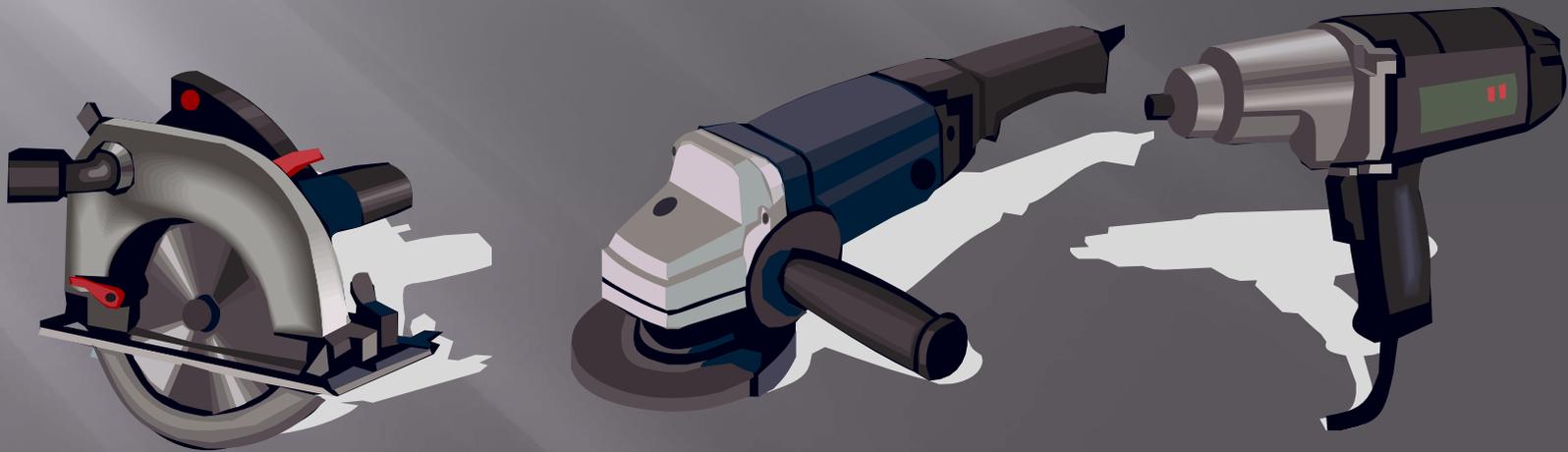


MSA FACILITIES SAFETY AND HEALTH INSPECTION PROGRAM

Portable Power Tools



Approved for Public Release;
Further Dissemination Unlimited

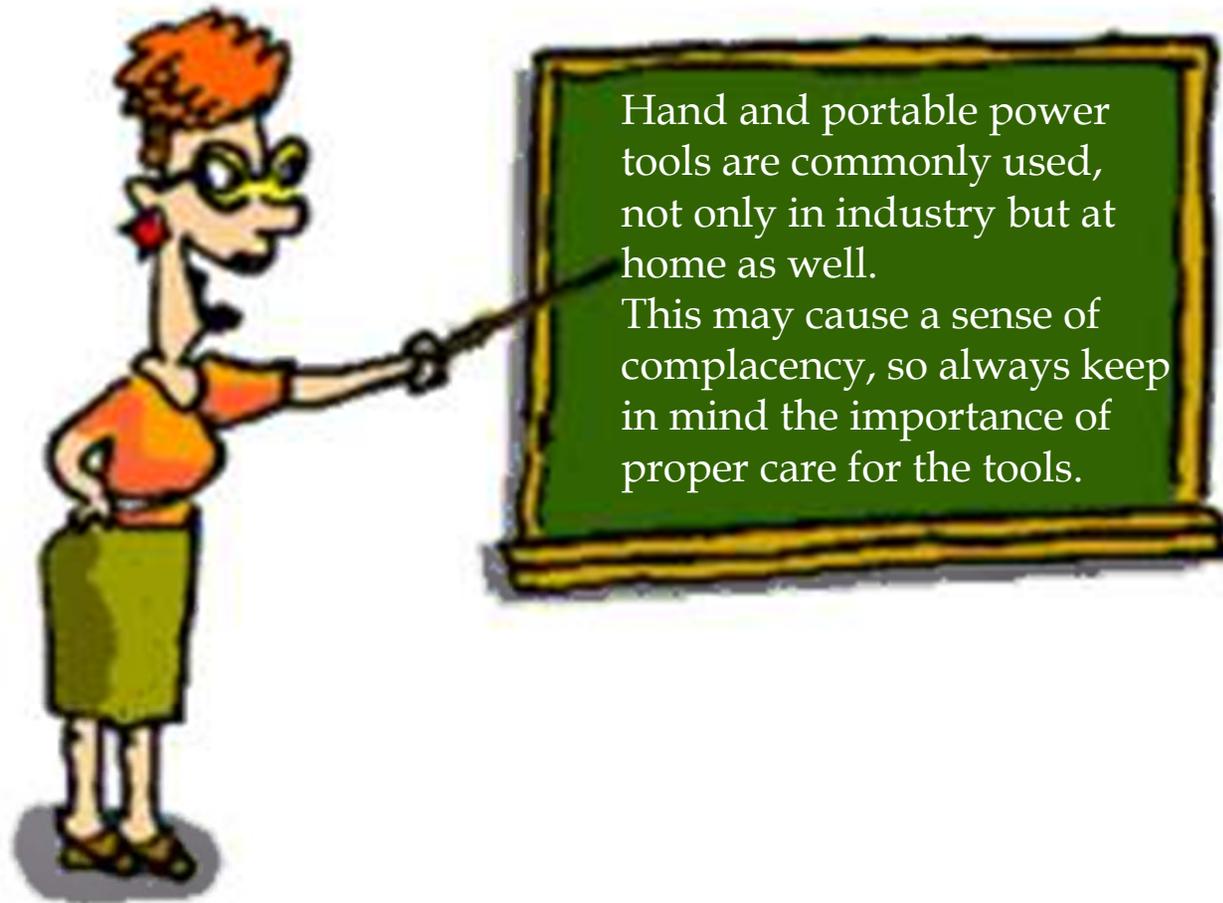
Portable Power Tools

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

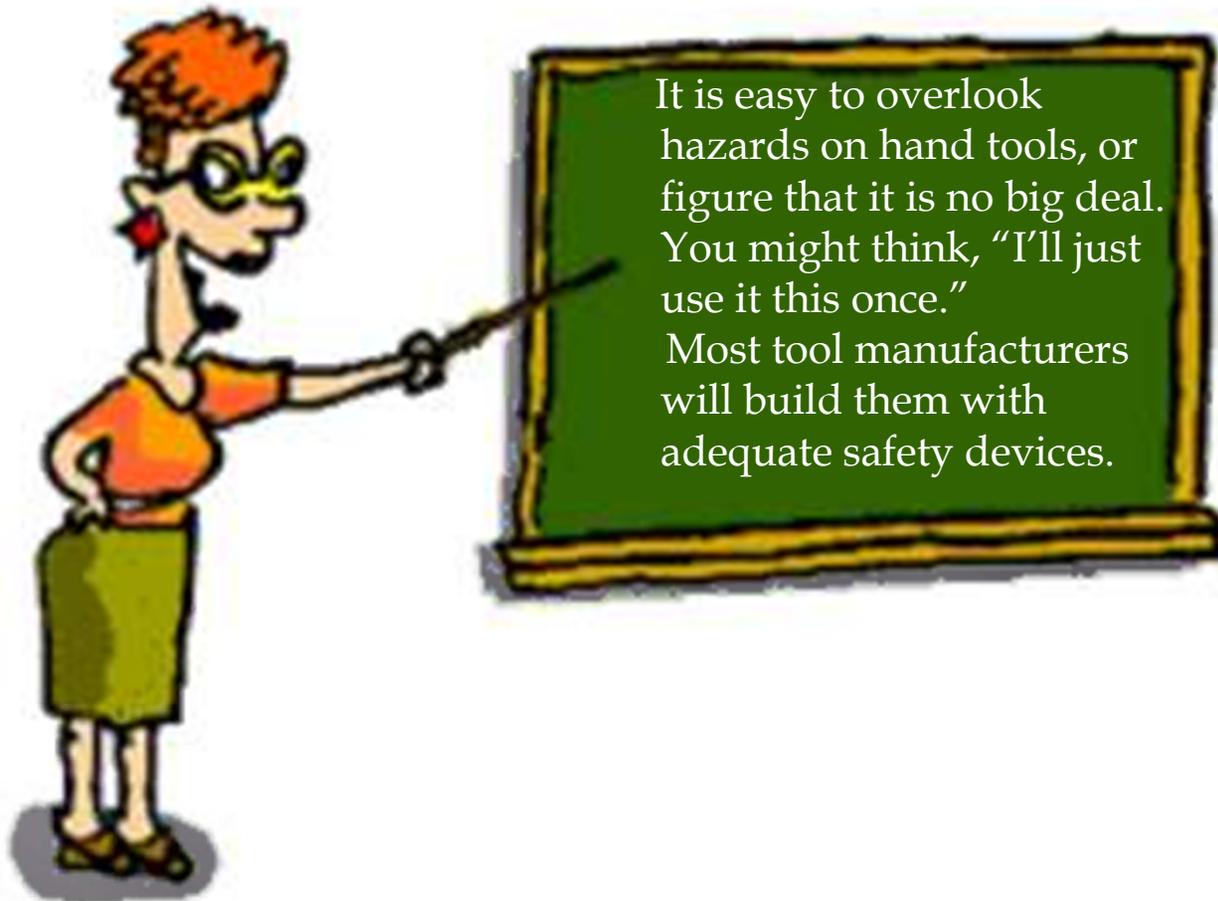
1. Utilize section X of the Safety and Health Hazard Inspection Program Checklist to identify compliant and non-compliant safety behaviors.
2. Identify areas of concern requiring immediate action to mitigate or prevent a possible injury.

Please use "Slide Show" to properly view this presentation!

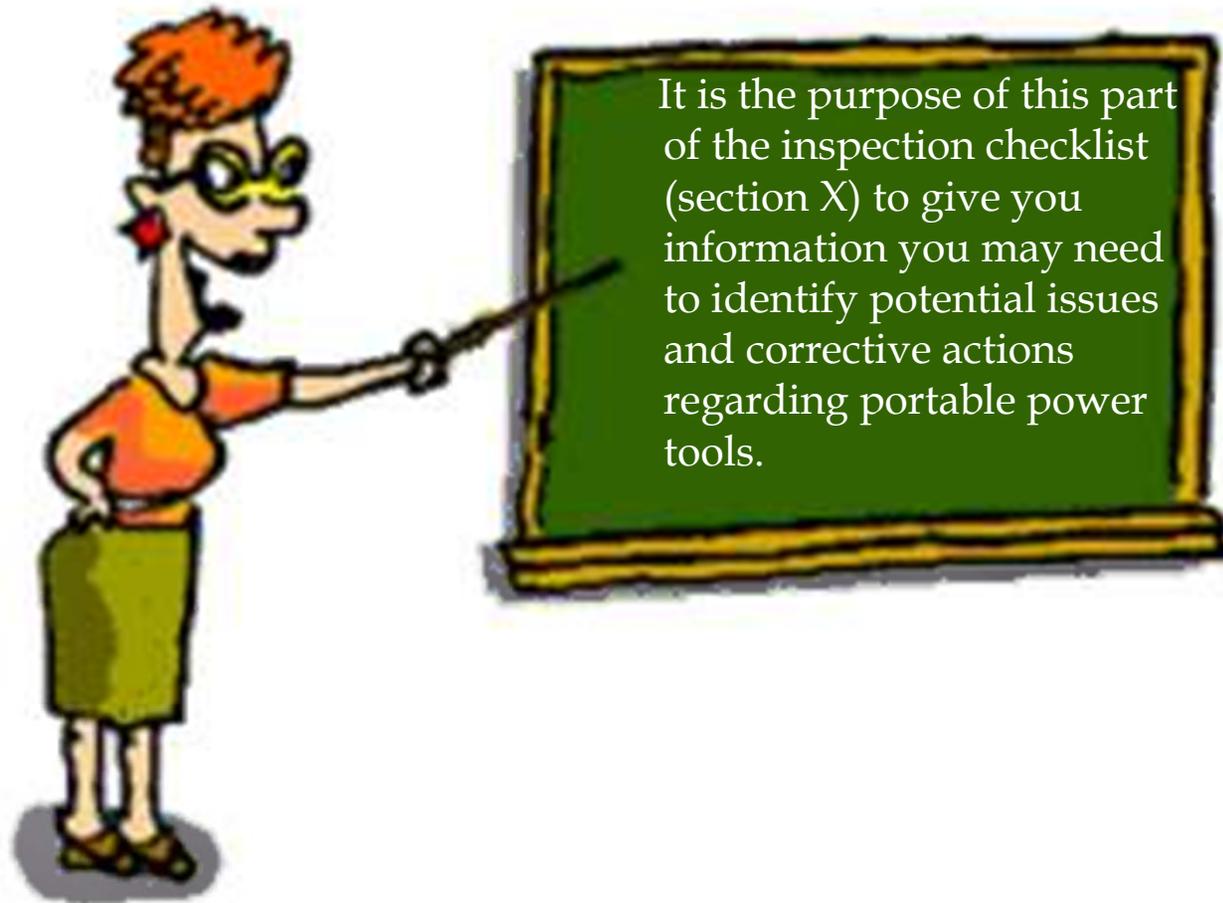
Portable Power Tools



Portable Power Tools



Portable Power Tools



Portable Power Tools

- ▣ Section X of the inspection checklist deals with portable power tools.
- ▣ Let's take a closer look at this section.

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

No.	Inspection Observations	Compliant?	See Comments (indicate with X)
		Y•N•N/A	
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.		
4	Portable electrical tools are either the grounded type with an intact ground prong on the attachment plug or are marked on the nameplate as being double-insulated.		
5	Where applicable, users of portable electrical tools are protected by Assured Equipment Grounding or GFCI.		
6	Hand held portable power tools are equipped with a constant pressure switch or similar means for automatic shut-off control.		
7	Pneumatic powered tools, which may affect the work piece, are equipped with a tool retainer.		
8	Air hoses are equipped with devices to prevent whipping.		
9	Compressed air is used for cleaning only when regulated to 30 psi or less.		
10	Air hoses and connections are in good condition.		
11	Other.		
Y	WELDING, CUTTING, and BRAZING		
1	Fire hazards are removed or protected at the work location.		
2	Fire watches and fire extinguishing equipment are readily available.		
4	The type(s) of ventilation being employed are appropriate for the work area and activities performed.		
5	Arc welding power and welding lead terminals are enclosed and protected.		
6	Arc welding machine has a legible manufacturer's nameplate in place.*		
7	Arc welding unit equipped with disconnect, over-current protection, and properly grounded.		
8	Employees in areas adjacent to welding operations are protected from UV radiation and flying sparks.		

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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.
4. Portable electrical tools are either the grounded type with an intact ground prong on the attachment plug or are marked on the nameplate as being double-insulated.
5. Where applicable, users of portable electrical tools are protected by Assured Equipment Grounding or GFCI.
6. Hand held portable power tools are equipped with a constant pressure switch or similar means for automatic shut-off control.
7. Pneumatic powered tools, which may eject the work piece, are equipped with a tool retainer.
8. Air hoses are equipped with devices to prevent whipping.
9. Compressed air is used for cleaning only when regulated to 30 psi or less.
10. Air hoses and connections are in good condition.
11. Other.

Portable Power Tools

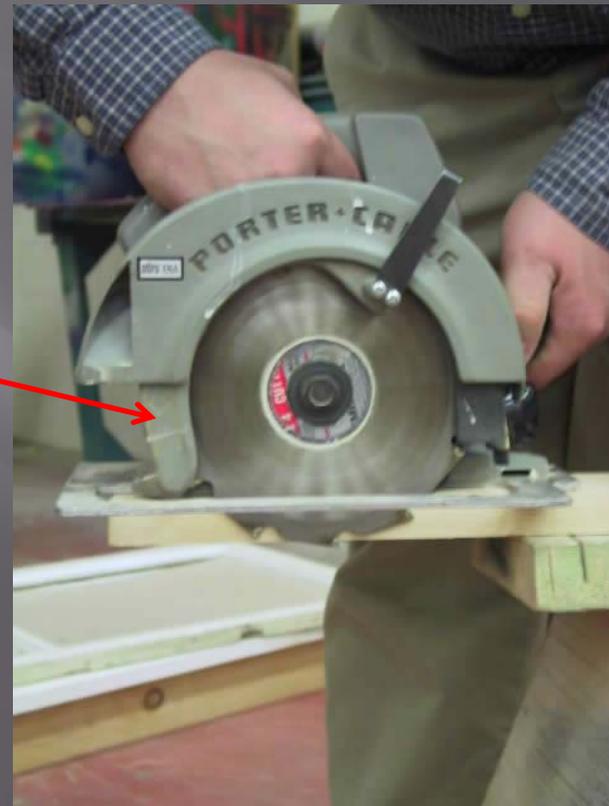
1. Protective guards are in place and operable.

- OSHA and DOE both require that tools and machines that could cause an injury be properly safeguarded.
- The type of guard usually associated with portable power tools are attached or fixed guards.



Portable Power Tools

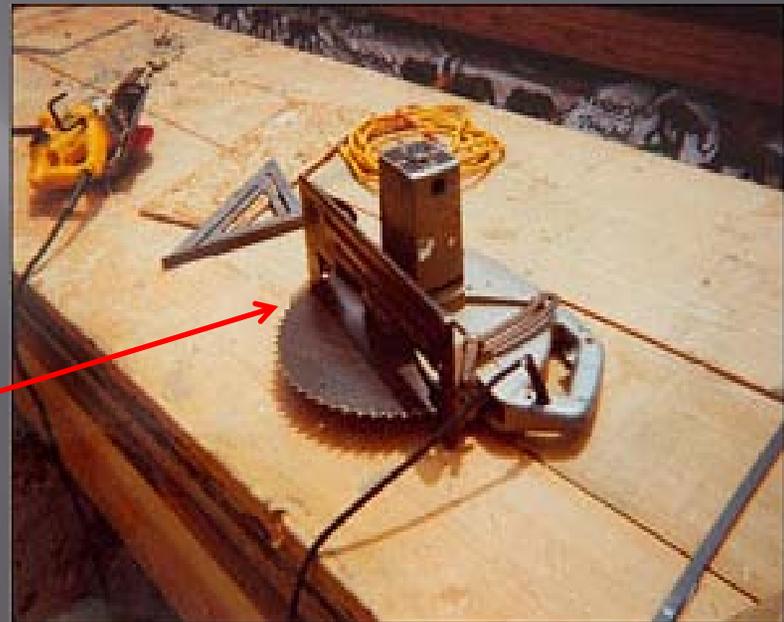
1. Protective guards are in place and operable.
- A compliant rating would indicate that the tool had a guard, it was in place, and functioning properly.



Portable Power Tools

1. Protective guards are in place and operable.

- A non compliant rating would indicate that the tool did not have a guard, it was not in place, or was not functioning properly.
- In this case the guard for the blade had been wedged up so it would expose the entire blade.



Portable Power Tools

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 authority having jurisdiction (AHJ).
- Electrical equipment on the DOE Site is required to meet Underwriters Laboratory (or UL for short) requirements and be listed.
 - This means that the product was tested and found to be safe for use within requirements established by the Laboratory.
 - It is also allowed to use equipment that has been tested by some other Nationally Recognized Testing Laboratory or NRTL (such as Factory Mutual (FM)).
 - Finally the Hanford authority having jurisdiction is allowed to determine acceptability of equipment if meets the equivalent standards of UL or other NRTL.



Portable Power Tools

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 authority having jurisdiction (AHJ).
- A compliant rating would indicate that all of the portable power tools were listed and labeled with a UL, NRTL, other AHJ listing.



Portable Power Tools

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 authority having jurisdiction (AHJ).
- A non compliant rating would indicate that all of the portable power tools were not listed and labeled with a UL, NRTL, other AHJ listing.



This "Portable Lamp" has no markings to indicate that it is safe or has been tested.

Portable Power Tools

3. Attachment plugs and cords are in good condition with no loose or broken prongs and no frayed or cracked insulation.
- This item is to ensure that the cords and plugs are in a condition to safely power the tool they serve.
 - Age, chemicals, environment, abrasion, etc. can damage cords and reduce or eliminate their insulation quality.
 - Misuse or hard usage can cause damage to plugs as well, causing them to fail
 - A failure of either the cord or the plug can create an electrocution or fire hazard for the user.



Portable Power Tools

3. Attachment plugs and cords are in good condition with no loose or broken prongs and no frayed or cracked insulation.
- A compliant rating would indicate that the cord of the tool or any associated extension cords were in good shape, no abrasions or modifications/damage to the plugs.



Portable Power Tools

3. Attachment plugs and cords are in good condition with no loose or broken prongs and no frayed or cracked insulation.
- A non compliant rating would indicate that the cord's integrity was compromised.
 - This would include:
 - Abrasion



The outer insulation of this cord has been damaged due to abrading on a sharp corner or edge.

Portable Power Tools

3. Attachment plugs and cords are in good condition with no loose or broken prongs and no frayed or cracked insulation.
- A non compliant rating would indicate that the cord's integrity was compromised.
 - This would include:
 - Abrasion
 - Overheating



The cord above was wound about a storage reel and used. (Not recommended by the manufacturer) The heat build up melted the insulation.

Portable Power Tools

3. Attachment plugs and cords are in good condition with no loose or broken prongs and no frayed or cracked insulation.
- A non compliant rating would indicate that the cord's integrity was compromised.
 - This would include:
 - Abrasion
 - Overheating
 - Burns from arcs



The plug above had been shorted when it came into contact with metal causing arcing and melting of the blade.

Portable Power Tools

3. Attachment plugs and cords are in good condition with no loose or broken prongs and no frayed or cracked insulation.
- A non compliant rating would indicate that the cord's integrity was compromised.
 - This would include:
 - Abrasion
 - Overheating
 - Burns from arcs
 - Questionable "Repairs"



If a cord or plug are damaged they need to be repaired in a manner that the original protection/function is maintained. This is not that kind of repair.

Portable Power Tools

3. Attachment plugs and cords are in good condition with no loose or broken prongs and no frayed or cracked insulation.

- A non compliant rating would indicate that the cord's integrity was compromised.
- This would include:
 - Abrasion
 - Overheating
 - Burns from arcs
 - Questionable "Repairs"
 - Modifications of plugs

Suicide Adapter



The purpose of the longer prong on a 3 pronged plug to assure grounding of the tool, many times this is improperly removed or an adapter is used so that a 2 prong outlet can be used. This is not allowed!

Portable Power Tools

4. Portable electrical tools are either the grounded type with an intact ground prong on the attachment plug or are marked on the nameplate as being double-insulated.
- Portable power tools come in two types of designs. Let's discuss these designs in detail:



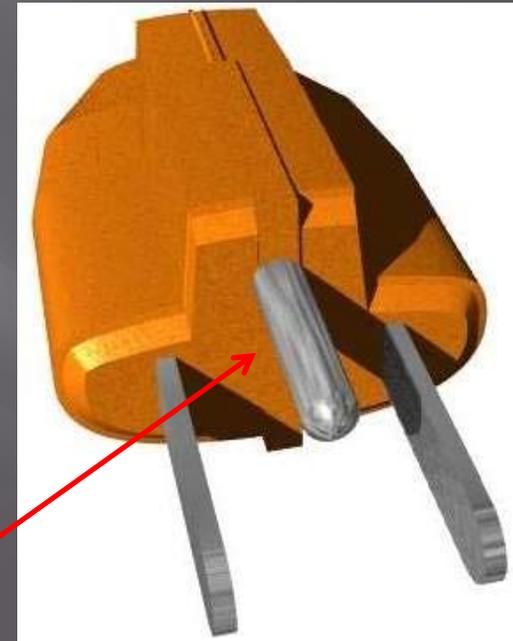
Portable Power Tools

4. Portable electrical tools are either the grounded type with an intact ground prong on the attachment plug or are marked on the nameplate as being double-insulated.
- Metal case tools are designed so that if a problem with the motor were to occur and could cause the case to become energized (and possibly shock you) are required to have a grounding plug.
 - This plug has three prongs, the circular and longest is called the grounding prong and will make sure that any electrical charge on the case will be directed away from the user.



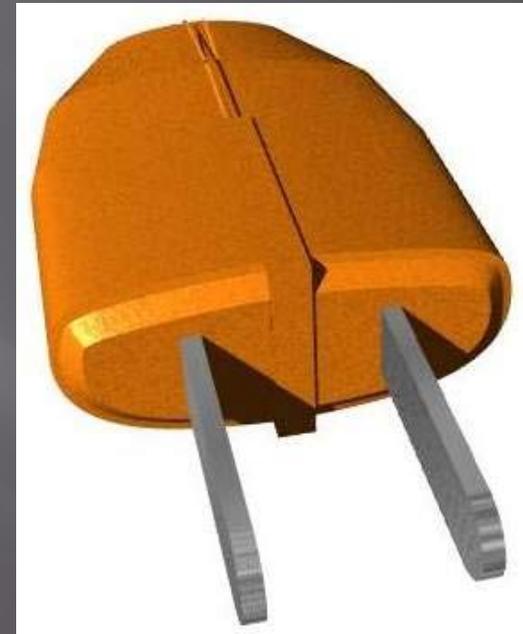
Portable Power Tools

4. Portable electrical tools are either the grounded type with an intact ground prong on the attachment plug or are marked on the nameplate as being double-insulated.
- Metal case tools are designed so that if a problem with the motor were to occur and could cause the case to become energized (and possibly shock you) are required to have a grounding plug.
 - This plug has three prongs, the circular and longest is called the grounding prong and will make sure that any electrical charge on the case will be directed away from the user.
 - You need to look at this prong and make sure it is in place and safe.



Portable Power Tools

4. Portable electrical tools are either the grounded type with an intact ground prong on the attachment plug or are marked on the nameplate as being double-insulated.
- The second type is designed so that any electrical problem that could occur in the tool an insulating barrier (in addition to the insulation of the motor, wires, etc. itself) is in place. Often this is an plastic case.
 - This type of tool will have a two prong plug in place and will have a permanent stamp “Double-Insulated” on the tool itself.



Portable Power Tools

4. Portable electrical tools are either the grounded type with an intact ground prong on the attachment plug or are marked on the nameplate as being double-insulated.
- A compliant rating on this item would indicate that the plug had been inspected. If the tool was grounded it had the grounding prong in place. If it was an ungrounded tool the tool itself was double insulated and marked.



Portable Power Tools

4. Portable electrical tools are either the grounded type with an intact ground prong on the attachment plug or are marked on the nameplate as being double-insulated.
 - ▣ A non compliant rating on this item would indicate that the plug was either inappropriate, damaged, or modified.



Portable Power Tools

5. Where applicable, users of portable electrical tools are protected by Assured Equipment Grounding or GFCI.
- The greatest risk of electrocution when using portable power tools occurs out of doors, in damp or wet area, or near grounded metal (piping, metal buildings, etc.)
 - This would be typically during construction or maintenance operations.



Portable Power Tools

5. Where applicable, users of portable electrical tools are protected by Assured Equipment Grounding or GFCI.

- ▣ This is usually accomplished for grounded electrical tools by:
 - Assured Equipment grounding program.

1st Quarter Color Code Is

WHITE

2nd Quarter Color Code Is

GREEN

3rd Quarter Color Code is

RED

4th Quarter Color Code is

ORANGE

This is a program where a qualified, designated electrical worker checks to ensure that the grounding wire is intact and the tool is in a safe condition.

Portable Power Tools

5. Where applicable, users of portable electrical tools are protected by Assured Equipment Grounding or GFCI.

- ▣ This is usually accomplished for grounded electrical tools by:
 - Assured Equipment grounding program.
 - Use of GFCI's in affected areas or whenever the tool is used with an extension cord. (The cord is placed on the receptacle end.)



Portable Power Tools

5. Where applicable, users of portable electrical tools are protected by Assured Equipment Grounding or GFCI.

- A compliant rating would indicate that the use of GFCI's or the use of an assured Equipment Grounding Program was in place.

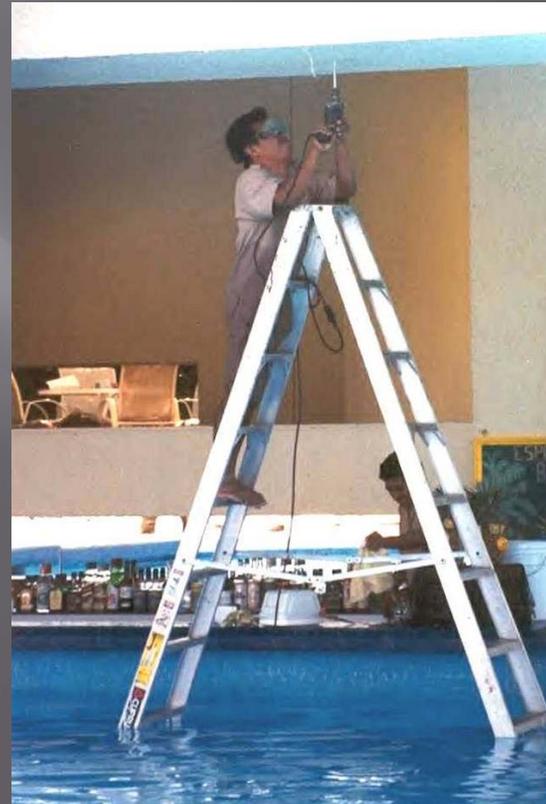


1st Quarter Color Code Is	WHITE
2nd Quarter Color Code Is	GREEN
3rd Quarter Color Code is	RED
4th Quarter Color Code is	ORANGE



Portable Power Tools

5. Where applicable, users of portable electrical tools are protected by Assured Equipment Grounding or GFCI.
 - ▣ A non compliant rating would indicate that neither an equipment ground program was in place, followed, or GFCI's were not used if prescribed by the conditions.



Portable Power Tools

6. Hand held portable power tools are equipped with a constant pressure switch or similar means for automatic shut-off control.
- The purpose behind this item is to verify that portable power tools are designed so that if you relieve the pressure on the switch it will automatically shut off.
 - A few types of tools are designed with a button or lock that will allow the tool to remain running when the pressure on the switch is removed (such as on this drill).



Portable Power Tools

6. Hand held portable power tools are equipped with a constant pressure switch or similar means for automatic shut-off control.
 - ▣ If the applicable power tools (saws, mototools, drills, etc) have a spring loaded trigger that is operational and is not tied down or otherwise defeated then this issue is compliant.
 - ▣ A non compliant rating would indicate that there is a problem and the tools should not be used.



Portable Power Tools

7. Pneumatic powered tools, which may eject the work piece, are equipped with a tool retainer.
- Pneumatic (air operated) tools that have the potential of ejecting a bit or drill must have a locking device in place to prevent this from happening.
 - A type of locking device would be similar to a bale on this jackhammer that keeps the bit from being ejected.
 - An ejected bit could hit someone and cause a serious injury.



Portable Power Tools

7. Pneumatic powered tools, which may eject the work piece, are equipped with a tool retainer.
- A compliant rating would indicate all affected pneumatic tools would meet this requirement and have a means of locking bits/blades in place.
 - A non compliant rating would indicate this was not the case and the tool needs to be taken out of service and noted on your inspection checklist.



Portable Power Tools

8. Air hoses are equipped with devices to prevent whipping.
- Whipping Hose Danger: If an electric cord were to break, there is generally not much danger unless you come in contact with the conductors. However, a severed air hose can whip around violently until the air is shut off. You may be injured by the whipping hose or while scrambling to get out of its way.



Portable Power Tools

8. Air hoses are equipped with devices to prevent whipping.

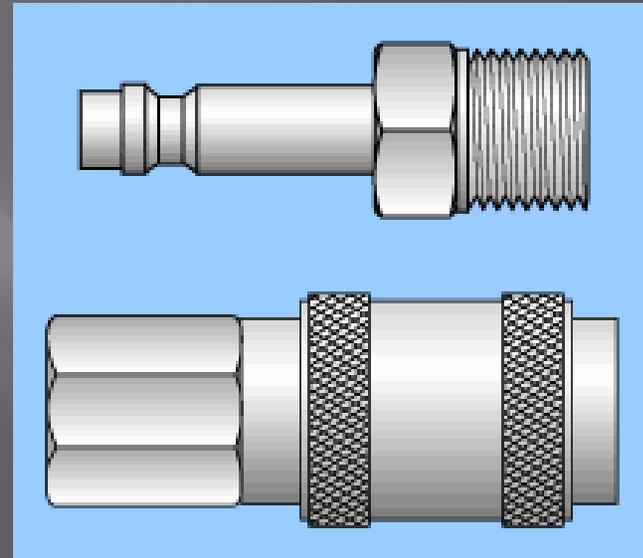
- To protect you from this you need to use a cable similar to this that is a safety band designed to contain the hose should it disconnect.



Portable Power Tools

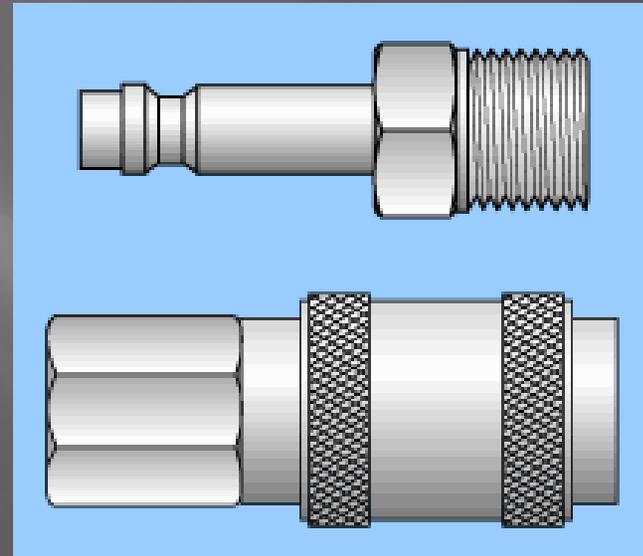
8. Air hoses are equipped with devices to prevent whipping.

- To protect you from this you need to use a cable similar to this that is a safety band designed to contain the hose should it disconnect.
- Many types of smaller pneumatic tools use quick disconnect fittings as these. You need to ensure that the tool has the male fitting, and the hose the female. The female fitting is designed to close and seal the air if the male is not inserted.



Portable Power Tools

8. Air hoses are equipped with devices to prevent whipping.
 - A compliant rating would indicate that the air (pneumatic) lines were designed to prevent them from whipping either by the use of an appropriate quick disconnect or a restraint wire.
 - A non compliant rating would indicate that this was not the case and would need to be addressed.



Portable Power Tools

9. Compressed air is used for cleaning only when regulated to 30 psi or less.
- One of the tools used commonly in shops is compressed air not only to power pneumatic tools but also to clean surfaces (that will not create an atmospheric hazard).
 - Among the dangers associated with this is the possibility of dirt, oil, or other chemicals possibly being injected into the person.
 - The use of compressed air to inject chemicals into a person is the basis for the use of “Inoculation Guns” that have been used for over 40 years.



Portable Power Tools

9. Compressed air is used for cleaning only when regulated to 30 psi or less.
- Regulations require that the pressure at the surface of the exhaust of any air nozzle used for cleaning be limited to < 30 psig. This may be done by the use of an in line air regulator or a “safety nozzle” designed to divert the air to keep the pressure below this level.



Portable Power Tools

9. Compressed air is used for cleaning only when regulated to 30 psi or less.
 - A compliant rating would be given if either the air pressure is limited to <30 psig or the used a safety nozzle is noted.
 - A non compliant rating would indicate that air pressure in excess of 30 psig is being used for cleaning and can pose a hazard.



Portable Power Tools

10. Air hoses and connections are in good condition.

- The purpose of this item is to ensure that the tools, hoses, and their connectors are good working condition.
- A compliant rating would indicate that this was the case.
- A non compliant rating indicates that the tools, hose, or connectors are damaged or worn.



Portable Power Tools

- 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·N/A	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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Thank you for your time
and desire to help us have
a safer workplace