Portable Grinder

I. Competencies

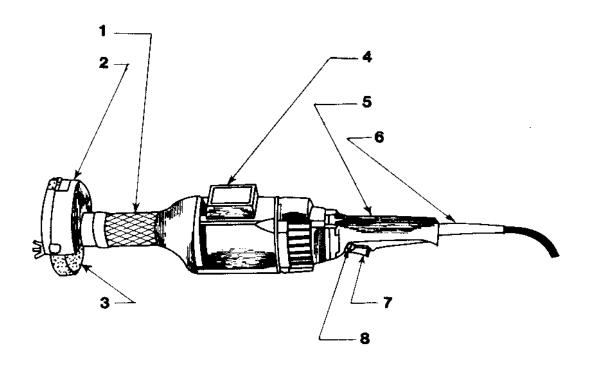
Given a properly adjusted portable grinder, instruction and demonstration of use, each student will be able to:

- A. Identify the major parts of the portable grinder.
- B. Complete a written test on safety and operating procedures of the portable grinder with 100 percent accuracy.
- C. Demonstrate the ability to use the portable grinder while following all safety rules and correct operating procedures.

II. Instructional Materials and Procedures

- A. Identification of basic portable grinder parts:
 - 1. Fore-handle
 - 2. Wheel guard
 - 3. Grinding wheel
 - 4. Tool rest

- 5. Rear handle
- 6. Cord strain reliever
- 7. Trigger switch
- 8. Switch lock



B. Portable Grinder Safety

- 1. Obtain the instructor's permission before operating the portable grinder.
- 2. Wear an industrial quality eye protection, i.e., a face shield <u>and</u> safety glasses. Ear protectors are recommended. Be sure the grinder is properly grounded or double insulated.
- 3. Be sure the switch is of and the cord disconnected from the power source before adjusting, lubricating, inspecting or changing grinding wheels.
- 4. Never use a cracked grinding wheel or one that vibrates excessively.
- 5. Use only wheels that are designed to operate at the speed indicated on the grinder nameplate. The exposed area of the grinding wheel should not exceed more than ¼ of the area of the entire wheel.
- 6. The wheel guard should be in place and used at all times when operating the portable grinder.
- 7. Do not direct the grinder discharge sparks at yourself or others. The sparks may cause burns, fires and/or small pieces of metal or grit to become in the skin.
- 8. When grinding small pieces, be sure they are held securely in a vise clamped to a table.
- 9. Do not talk to anyone while operating the grinder.
- 10. Never use the grinder in areas where flammable materials are stored.
- 11. Remove or fasten loose articles of clothing such as long sleeve, coats, neck ties, and confine long hair when using the grinder.
- 12. Make sure the floor around your work area is clean before operating the grinder.
- 13. Keep the power cord away from the grinding wheel and material being ground.
- 14. Hold the grinder firmly with both hands.
- 15. After use always make sure the switch is turned off before the grinder is put down.
- 16. Never operate the portable grinder while standing in water or on a wet floor.
- 17. Never use a grinding wheel which is worn to less than ½ of it's original diameter.
- 18. Make certain the grinding wheel is fastened securely to the arbor. Perform this check with the power disconnected.
- 19. Never lay down a grinder while the wheel is turning.
- 20. Do not force the grinder into the metal.

C. Portable Grinder Operating Procedure

1. Wear an industrial quality face shield and safety glasses when grinding.

- 2. Select a grinding wheel which will fit the arbor shaft.
- 3. Match the R.P.M. range of the wheel to the R.P.M. of the grinder when selecting grinder wheels. This protects the wheel from exploding due to high R.P.M. and rim speed.
- 4. Sound the grinding wheel for cracks before installing.
- 5. Be sure the grinding wheel is kept at room temperature. A very cold wheel may become frozen and break when used.
- 6. Firmly secure all work to the ground.
- 7. Hold the grinder with both hands when using.
- 8. Be sure the wheel guard is in place when grinding.
- 9. Be sure that no one is in line with the grinding wheel when you start the grinder.
- 10. Turn the grinder on and off to see if the grinding wheel vibrates excessively and that it runs true.
- 11. Feed the grinding wheel lightly into the work after the motor has reached full operating speed.
- 12. Do not force the grinder into the work causing wheel speed to be reduced.
- 13. Do not lay the grinder down until the wheel has stopped turning.
- 14. Lay the grinder on its rest so nothing touches the grinding wheel while it is not in use.
- 15. Return the portable grinder to its proper storage place after use.

III. SAFETY TEST

Portable Grinder Safety and Operation Test

Na	.me_	Date Class						
Μι	ıltip	ole Choice – Place the letter off the most correct answer on the answer sheet.						
1.	When using the portable grinder which of the following should NOT be done:							
	b. c.	Use the wheel guard at all times Hold the grinder with both hands Force the grinder into the metal Direct the sparks away from you						
2.	W	hen setting up the portable grinder and before grinding takes place, always						
	b. c.	sound the grinding wheel for cracks make sure the grinding wheel fits the arbor shift turn the grinder motor on and off to see if the wheel vibrates excessively or does not run true all of the above						
3.	Th	e operator of a portable power grinder should wear						
	b. c.	safety glasses a face shield ear protection all of the above						
4.	Ве	fore using the portable grinder the operator should						
	b. c.	lock the trigger switch remove the wheel guard put the electrical cord on the work to be ground none of the above						
5.	Do	NOT use a grinding wheel which is						
	b.	rated at a lower r.p.m. than that of the grinder a resinoid bond rated at a higher r.p.m. than that of the grinder a vitrified bond						

6.	The maximum surface area of a grinding wheel that can be exposed by the wheel guard is				
	a. 1/8 b. ½ c. 3/8 d. ½				
7.	The wheel guard should be used on the grinder				
	 a. at all times b. when grinding ferrous metal c. when grinding in a confined area d. when the wheel has worn less than ½ of its original diameter 				
8.	Sparks from the grinder should be directed				
	 a. down toward the ground b. away from yourself and others c. up in the air d. toward an exhaust vent 				
9.	Never use grinding wheel which is less than of the original diameter?				
	a. ³ / ₄ b. 5/8 c. ¹ / ₂ d. 3/8				
10.	When finished using a portable grinder make sure				
	 a. the grinding wheel has stopped rotating before putting the grinder down b. the grinder is placed down on the tool rest c. the grinder is returned to its proper storage place d. all of the above 				

IV. Performance Test for Portable Grinder

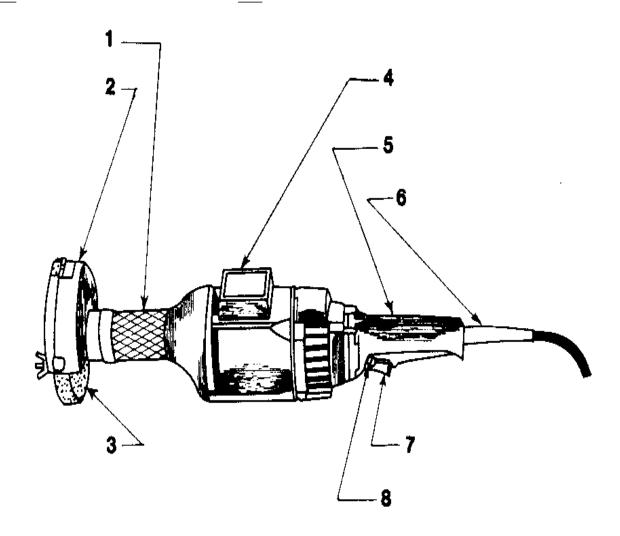
The student performs the following while using the portable grinder.

				Yes	No	N/A
1.	Industrial quality safety glas	sses, face sh	ields,			
;	and ear protectors are worn					
2.	Loose clothing and jewelry	are not wor	n by the			
	operator.					
3. 7	The floor and work area are	kept clean.				
	The grinding wheel is check		KS.			-
	The grinder motor is turned					
1	to check for excessive vibra	tion and out	t-of-round			
	grinding wheel.					
	The wheel guard is kept in p	lace and pr	operly adjusted.			- <u></u>
	The metal being ground is p					- <u></u>
	The grinder is allowed to rea					- <u></u>
	being applied to the work.	1				
	Discharge sparks from the g	rinder are d	irected			- <u></u>
	nto suitable locations.					
10.	The grinding wheel has stop	ped turning	before			
	he grinder is put down.					
	The grinder is place on the to	ool rest whe	en it is not in use.			-
	Both hands are kept on the					-
	Work procedures are safe an					-
14. Correct procedures are used in grinding.						-
	1	0 0				
Con	nments					
Sign	ed (Student)	Date	Signed (Teacher)		- <u>-</u>	Date
			·			

Portable Grinder Parts Identification Test

Match the number of each portable grinder part with the letter of the correct part name.

A. Tool rest	E. Wheel guard
B. Fore handle	F. Grinding wheel
C. Switch lock	G. Trigger switch
D. Rear handle	H. Cord strain relieve



BASIC PORTABLE GRINDER PARTS

