Introduction to Hand Held Power Tools

Test
General Test Instructions

This is a timed test. You have one session of 3 hours to complete the test. Choose the best answer and mark your answers carefully on the answer sheet.

1. Safety documents provide information about:
   a. Operating equipment in a shop safely.
   b. Hazards which are results of unsafe equipment operations.
   c. Recommendations for avoiding accidents or injuries.
   d. All of the above.

2. Air tools are designed to operate at the proper efficiency with:
   a. Proper PSI (Pounds Per Square inch) and proper CFM (Cubic Feet Per Minute).
   b. Air regulators for best RPM and CFM for the job to be performed.
   c. Frictionless air lines.
   d. None of the above.

3. If the air tool operates too fast for the job situation, you need to:
   a. Press the trigger to use the tool as a variable speed.
   b. Install an air regulator between the air hookup and the motor and dialing the lower speed.
   c. Get a smaller diameter hose to restrict the CFM.
   d. Get a slower geared motor from the tool room.

4. Air hose supply for the tools is measured by the:
   b. O.D. (Outside Diameter).
   c. Length in inches.
   d. Length in feet.
5. Small diameter hoses, such as ¼” diameter should be restricted to use by:
   a. Small drill motors.
   b. Seal guns and orbital jitterbug sanders.
   c. Pullers.
   d. Routers.

6. For the most effective air flow the recommended setup would be:
   a. A short coiled hose 1/4" diameter.
   b. A long straight hose 3/8" diameter.
   c. A short hose with no connections in between source and motor.
   d. Connections and manifolds are designed to minimize restrictions to air flow, so this should not make a difference.

7. Hand Held Routers are used in shops to:
   a. Make cutouts and do "net" trims on parts.
   b. Bore holes into thicker materials.
   c. Create shapes in blocks of aluminum.
   d. Form complex compound shapes in sheet metal.

8. It is not recommended to use hand held routers on materials thicker than:
   a. .063.
   b. .125.
   c. .250.
   d. .313.

9. Hand Held Router cutting is guided by:
   a. Hand and sight.
   b. Computer numerical controls.
   c. Templates and fixtures.
   d. Skin laps on adjoining parts.
10. The distance between the cutter and the edge of the template is called:
   a. Setback.
   b. Chip path.
   c. “Net” space.
   d. Roughing cut.

11. The cutting direction when using the Hand Held Router on inside cuts, in routing fixtures is:
   a. Clockwise.
   b. Counterclockwise.
   c. Up and down.
   d. In and out.

12. Cutting with the router requires the spindle speed to be:
   a. Operated at variable speeds according to the material.
   b. Operated at full speed.
   c. Run at half speed for corners and sharp curves.
   d. None of the above.

13. The router cut is begun:
   a. After the motor is running by angling into the material.
   b. With an edge to initiate the cutting.
   c. In a pre-drilled starter hole.
   d. By making a surface cut first, and then adjusting the cutter depth.

14. Personal protection, while operating a Hand Held Router, will include:
   a. Ear Protection.
   b. Eye Protection, such as goggles or face shield.
   c. Apron, and protective sleeves.
   d. All of the above.
15. Adjustments to the Hand Held Power Router are done by:
   a. The operator.
   b. The lead man.
   c. The tool room.
   d. Calibration certification organization.

16. Per JSA # 1046, is it ok to use the motor exhaust to blow debris from the work area?
   a. Yes
   b. No

17. Rotating abrasive tools have accessories for supporting the abrasive material. It is important to remember diameters of these accessory tools are restricted by:
   a. The job to be done.
   b. The rotational speed of the motor.
   c. The type of tool to be attached.
   d. All of the above.

18. "Jitterbug" sanders are primarily used for:
   a. Finishing flat or slightly curved surfaces.
   b. Trimming sharp edges.
   c. Sanding down to the "net" trim line on parts.
   d. Shaping composite "honeycomb" for contours and chamfers.

19. The cone sander is used for:
   a. Finishing flat or slightly curved surfaces.
   b. Deburring holes and finishing internal edges.
   c. Trimming part edges to "net" trim lines.
   d. Shaping contours on composite panels made of carbon fiber.
20. How many of the keyholes must be used to properly tighten the “Keyed Chuck” on a drill motor?
   a. One.
   b. Two.
   c. Three.
   d. None, hand tighten only.

21. The air line must be disconnected when chucking a drill to prevent injury or flying chuck keys.
   a. True
   b. False

22. When using a Nutplate drill (Winslow) the countersink settings should be:
   a. Made in scrap metal of similar thickness prior to drilling the production part.
   b. Made by the tool room attendant.
   c. Made by the lead.
   d. Not used because of irregularities and inconsistencies.

23. The purpose for the collet on the nose of the "Winslow" is to:
   a. Line the nutplate up with the drilled hole.
   b. Prevent the shavings from interfering with the countersink cutters.
   c. Pull the part to the flat mandrel on the tool nose piece.
   d. Adjust the drill / countersink depths.

24. The drill motor speed is determined by the:
   a. Material type.
   b. Drill bit configuration.
   c. Drill bit material.
   d. All of the above.
25. Angled power vanes are designed to be used:
   a. In place of pistol grip motors for better access in tight places.
   b. Because they are faster rotating.
   c. Because they can be carried in the tool box easier.
   d. Because they use threaded drill bits so no chuck key is needed.

26. The rivet squeeze is the preferred rivet installer because it:
   a. Has less vibration in how it works.
   b. Is lighter.
   c. Installs the fasteners uniformly.
   d. Is less likely to damage the rivet head.

27. Snap dies on a CP351 can be adjusted to the correct smash length by:
   a. Selecting the best length of die and spring.
   b. Selecting the closest length and adjusting with steel washers.
   c. Squeezing the trigger to a prescribed distance and releasing it.
   d. Attaching an air regulator valve and adjusting the knob.

28. When the “C” squeeze cannot be used due to inaccessibility of the work, the preferred hand held squeeze would be the:
   a. Bell squeeze.
   b. Offset squeeze.
   c. Alligator squeeze.
   d. "D" squeeze.

29. When changing the snap dies on the hand held rivet squeeze, the operator should first:
   a. Make sure the air valve is turned all the way down.
   b. Adjust the air valve wide open.
   c. Disconnect the spring die,
   d. Disconnect the air hose.
30. Rivet gun springs are used to:
   a. Boost the impact of the rivet die on the rivet head.
   b. Prevent the rivet die from shooting across the room, in case of accidental triggering.
   c. Reduce the vibration of the die impact for the "bucker".
   d. Protect the airplane from the end of the gun, in case the tool is dropped.

31. The purpose of the hole in the bucking bar is to:
   a. Provide a recess for the protruding rivet when removing an unacceptable rivet during rework.
   b. Provide a finger hold when holding the bucking bar in difficult positions.
   c. Attach a strap to wear on the wrist to prevent the bar from falling and damaging the airplane or somebody’s head.
   d. Gage the proper rivet gun die shank.

32. When operating a blind rivet installation tool such as an “Oly” puller or a “Cherry” puller, it is important to have the tool “Nose” perpendicular to the part surface because:
   a. The fastener head will be gapped under the head.
   b. The swaging pin may prematurely break off.
   c. The locking collar will not engage and stay in place.
   d. None of the above.

33. The "pintail" bag is primarily used to:
   a. Align the collar during installation to properly place it on the straight shank pin.
   b. Carry straight shank pins and collars so not to have to go to the “Standards Rack” so often.
   c. Catch the pin stems when the installation tool reaches the breakoff point of the fasteners.
   d. To avoid injury in case the straight shank pin head breaks off during installation.
34. When using the “Huck” puller, the collar is swaged into the locking rings on the end of the straight shank pin.
   a. True
   b. False

35. The ratchet wrench has a allen wrench in the center to:
   a. Turn the hex drive fastener to tighten the collar.
   b. Prevent the hex drive fastener bolt from turning when tightening the collar.
   c. Eject the collar hex drive when it breaks off.
   d. Pull the hex drive fastener into the material.

36. Power Screwdrivers and Powered Nutrunners are required to:
   a. Be capable of 20 ft lbs of torque.
   b. Run only to tighten the fastener bolt, screw, or collar.
   c. Tighten the fastener just short of full torque, for hand torquing the final few lbs.
   d. Reach full torque without hand wrenching.

37. Nutrunners and powered screwdrivers are torquing tools that require calibration every:
   a. 30 days.
   b. 60 days.
   c. 90 days.
   d. 120 days.

38. The purpose of the micro shaver is to:
   a. Shave the head of some fasteners to within flush requirements.
   b. Shave the bucked head of fasteners when driven into a countersink.
   c. Shave freeze plugs to the flushness requirements on completion of installation.
   d. All of the above.
39. When leaving the work area, where pneumatic hand held power tools have been in use, the operator must:
   a. Warn others of a tool that is powered up and should be avoided.
   b. Place the tools such that triggers cannot be activated.
   c. Disconnect the air pressure to the tools.
   d. Make sure a fellow worker watches for people walking into the work area to warn them of the danger.

40. If a "Huck" puller is not working correctly:
   a. Have the tool room attendant look at it.
   b. Try changing out the nose piece, yourself.
   c. Disconnect the air hose and then reconnect it.
   d. Put oil into the nose piece to lubricate it.

General Test Instructions
At this time have your test corrected and scored before proceeding to the next section
If you have passed the written test, you may now move onto the Shop Skills Project.

- Use the Shop Skills Practice Project to lay out your job
- Select the drill motors and countersink tools, as indicated, for drilling pilot and full size holes per drawing.
- **Observe all safety precautions that may be involved in using each tool.**
  - Assemble the tools appropriately for each particular task.
  - Drill pilot holes as required, per drawing, using a drill motor and proper size drills.
  - Drill and countersink as required, full size holes in parts/assemblies, in proper sequence and to correct size, per drawing, using the appropriate tool.
  - Determine and obtain the correct type and size fasteners from the roto-bin per drawing.
  - Install the fasteners, per drawing, using the correct tools.
- Sell the completed job or in-process checks to the instructor at the appropriate steps during the project. Perform minor rework as required.