

**Since 1991**

# TOP WRENCH COMPETITION RULES:

STATIC ENGINE CHALLENGE RULES:

1. The competition judges will start the engine prior to each team's start time.  This will demonstrate that the engine does run.  
2. Tools will be provided in the competition area; however teams may bring their own tools, if shown to the judges prior to the first team competition start time and the tools are left in the area for all schools to use.  
3. Each team that successfully starts the engine will run the engine for 15 seconds.  
4. The engine will be static-timed.  
5. The ignition system is the only system bugged.  The system starts at the battery and ends at the plugs.  The ignition switch or spark plugs will not be tampered with.  
6. Each team will have 10 minutes to “de-bug” the engine.  The team with the most time left on the clock wins the competition.  In case of a tie, the judges will be rating each school for spirit, teamwork, knowledge and sportsmanship.   
7. If no team starts the engine in the time allotted, the judges will determine the winner based on school spirit, teamwork, knowledge and sportsmanship.  
8. Only the competing team of no more than five people will be allowed in the competition area at any time.  (Classmates of the competing team will be allowed to observe.) \*\*\* EVERYONE ELSE STAY CLEAR! \*\*\*    
9. All teams will be presented a bug to overcome. Each team might not necessarily be given the same bug, but each bug will have similar complexity.  
10. Spare parts will be available (not necessarily new or good).

11. Engine specifications will be posted in the competition area.  
12. Questions concerning the rules of the competition will be discussed prior to the competition.  
13. ALL TEAMS WILL BE REQUIRED TO WEAR SAFETY EQUIPMENT and the team will be stopped if an unsafe act occurs.      
14. The judges’ decision is final!

15. No hints from instructors or audience during the competition.

**Miscellaneous Information:**

* Skills should include basic knowledge of electrical circuits, electrical testers (volt meter-continuity tester), engine fundamentals, troubleshooting and testing.
* The fuel system will not be bugged.

PIT CREW CHALLENGE RULES:

1. All teams will use the tools and lug nuts that are provided.  
2. Clock starts when the first team member crosses the start/finish line.  
3. Clock stops after the last team member and all equipment (wheel, impact wrench and jack) is across the start finish line.  Do not be concerned about the lug nuts that have been removed.  
4. Judges will make sure all lug nuts are on and tightened.  If a loose or missing lug is found, the team will be allowed to correct the problem.  Rules #1 and #2 will apply and the time will be added to the previous time.  
5. In the event of equipment failure (stripped lug nut, impact wrench or jack failure) the team will be allowed to restart after the problem is corrected.  Extra lug nuts, studs and tools will be in the area and used as needed.  
6. One superior performer will be selected from each team.  
7. A team will be disqualified if any team member performs an unsafe act.

VALVE COVER ELIMINATION RACE RULES:

Valve Cover Racing is similar in concept to the commonly-known "Pinewood Derby," utilizing gravity-power racers competing in head-to-head eliminations on a two-lane track. There is a ton of information on the internet about how to build a valve cover racer. Be creative!  
  
1. Must use small block Chevrolet valve cover.

* Must be short type only.
* Can be steel or aluminum.
* Must be stock in appearance (no wings, etc).
* Maximum width 8 inches including tires or wheels.
* Maximum weight 5 pounds.
* Original mounting flange cannot be modified.
* Must use 4 wheels.
* Skateboard wheels, Hard Drive Disks and CD are examples that can be used as wheels.

2. One racer per school.  
3. Each valve cover must pass tech inspection.  
4. Scales will be provided. Be prepared to add or remove weight.  
5. Each valve cover will be allowed three runs to tune before eliminations.  
6. No lane hopping or interference with competition.  
7. First infraction - rerun; second infraction - disqualification. Which means one rerun for entire event.  
8. If judges rule a tie, then reruns will be conducted until a winner is decided. Reruns will be in opposite lane.  
9. Must finish on wheels and in own lane.  
10. Entrants are responsible for staging their own Valve Cover entry.  
11. Unsportsman-like conduct will result in disqualification (& heavy shame).  
12. To continue with the Top Wrench theme, show school spirit and have fun!!

Custom paint challenge RULES:

Students demonstrate painting technique on mailboxes or metal-type air cleaners (round).

1. Projects need to be new. Do not submit a project used in a previous competition.

2. Mailbox or air cleaner must be metal and have smooth sides (no ripples).

3. Any colors may be used (solid, metallic, pearl, candies, three stage, etc).

4. Graphics and airbrush may be used excluding school logos due to school partiality.

5. No obscenities, alcohol, tobacco, drug, racial or gang-related content allowed.

**Mailbox/air cleaner custom paint will be judged on these areas:**

1. (50 points) - **Quality of work performed** (no runs, sags, dirt or any other imperfections)
2. (25 points) - **Creativity** (how well project was planned out and art work)
3. (25 points) -  **Correct procedures taken to complete project** (the steps taken to complete project should be typed on a 3x5 card).

WELDING/FABRICATION cONTEST RULES:

Students demonstrate welding technique on an original project.

1. Projects need to be new. Do not submit a project used in a previous competition.

2. Project size is limited to no bigger than a shoe box.

3. Project must be made of steel (new and old material are acceptable).

4. All welds must be exposed. No paint.

5. Project must show at least 3 types of weld: butt, corner, edge, lap, tee.

6. Project theme must be auto-related (no weapons, knives, spears, etc).

**Welding/fabrication contest will be judged on these areas:**

1. (50 points) - **Quality of work performed**
2. (25 points) - **Creativity**
3. (25 points) -  **Correct procedures taken to complete project** (the steps taken to complete project should be typed on a 3x5 card).

**DRUG FREE TENNESSEE – THE RIGHT CHOICE!**

The first **TOP WRENCH** Competition was held in 1991 and though many things have changed the basic principles of the program remain the same:

* *Stress the importance of a drug free lifestyle*
* Safety
* Building life skills
* Developing problem solving skills
* Initiating creative thinking
* **Teamwork**
* Communication and team building skills
* *Career opportunities*
* Building trust
* *Paying attention to the details*
* **Responsibility**
* Have fun!!!!!

**TOP WRENCH RELEASE, WAIVER AND CONSENT FORM**

I, as parent or legal guardian of\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, a minor, do hereby consent that my child or legal ward be permitted to tour the McGhee Tyson Air National Guard Base near Knoxville, Tennessee. I understand that my child’s or ward’s access to the base may be limited by the base commander, officers, employees or agents of any other base personnel.

In considerations of my child’s or ward’s access to the Air National Guard, I hereby fully release the Tennessee Air National Guard, the State of Tennessee, and the United States of America, their officers, employees and agents from any and all claims for injury or damages which may result from their tour of the Air National Guard Base.

I further hereby waive any right to bring any claim, lawsuit or action at law or equity against the Tennessee Air National Guard, the State of Tennessee, the United States of America or any of their officers, employees or agents arising out of the tour of the Air National Guard Base.

I acknowledge that my child’s or ward’s participating in these activities is voluntary, and knowingly assume all risk involved.

I also grant Top Wrench my permission to photograph and/or videotape my child during Top Wrench activities at the base. These photographs/videos may be used in print publications, online publications, presentations, websites, flyers and social media. I also understand that no royalty, fee or other compensation shall become payable to me by reason of such use.

Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Print Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_