

# TRACTOR TECHNICIAN 3 MEMBER TEAM

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## I. PURPOSE

This event is a perfect opportunity for students to get on the job training. All of the skills acquired from this event are helpful every day in agricultural, industrial and personal applications. Participants receive hands-on training that empowers them with highly marketable skills that makes them highly employable. Students apply mechanical knowledge and critical thinking and problem-solving skills and interact with industry professionals. This event is supported by curriculum for the following agricultural science and technology coursework: Agricultural Mechanics and Metal Technologies, Agricultural Equipment Design & Fabrication, Agricultural Power Systems, Practicum in Agriculture Food & Natural Resources, Agricultural Laboratory & Field Experience, Agricultural Structures Design & Fabrication.

## II. EVENT FORMAT

### A. Team Make-Up

1. Teams shall consist of three members from one high school. Team score is determined by combining the scores of all three students from each team
2. Qualifications of a team member:
  - a. Each team member must be currently a bona fide member of the FFA chapter of the school they represent and on the state roster.
  - b. Members of previous top 5 teams are ineligible to participate in future state contests.

### B. Team Eligibility

1. Three teams from each of the ~~ten~~ twelve areas of agricultural science and technology in Texas will be eligible to compete in the State FFA Tractor Technician CDE.
2. Teams representing an area must have participated in an area elimination contest in order to compete in the state contest.
3. In the event an area or areas fail to provide three teams, the state quota of ~~30~~ 36 teams shall be completed by using the rank order scores for Parts I and II of all teams (excluding the 1<sup>st</sup>, 2<sup>nd</sup> & 3<sup>rd</sup> place teams) that competed in area contests. It is possible, using this method, that all additional teams selected to meet the quota could come from one area.
4. The agricultural science teacher must certify the eligibility of each team member at registration.

### C. Equipment

1. Team members must provide their own compliant clipboard and/or clean folder with the following items: scan sheet, and/or copy of the scan sheet, optional Texas FFA CDE drop sheet, and/or 2 sheets of lined or unlined blank paper.
2. Industrial quality eye protection shall be worn by contestants as they compete in Parts II and III of the event. Industrial quality is define as meeting the

specifications of (American National Standards Institute) ANSI Z87.

3. Due to possible damage to the computers and other solid state components, test lights will not be permitted.
4. Digital multimeters are recommended and shall have a minimum of 10 or more megaohms input impedance.
5. Each team will provide their own box of tools and test equipment for participation in Part III.
6. Type ABC fire extinguishers with a minimum 2.5 pound capacity will be provided by each team for participation in Part III.
7. Drip pans with a minimum two gallon capacity and a minimum intake diameter of 16 inches will be provided by each team for participation in Part III.
8. Each contestant is to bring ten copies of a one-page resume.

#### **D. General Rules**

1. This event is hosted by the Houston Livestock Show and Rodeo.
2. Awards, prizes, and internships are sponsored by the Houston Livestock Show and Rodeo, the Agricultural Mechanics Committee and participating equipment manufacturers and dealers.
3. The contest will be judged by service engineers from the agricultural, construction, and automotive equipment industries and/or university personnel.
4. Only the judges and the supervising attendants will be permitted in the immediate vicinity while Parts I and II are being conducted and on the area floor during Part III.
5. Decisions of the judges will be final.
6. Ag Science teachers coaching state teams will be notified of the make of tractor or tractors to be used in Part III prior to the event, if possible.
7. Each team member will participate individually in Parts I and II of the contest, and work as a member of the school team in Part III of the contest.
8. Teams shall not be permitted to test drive until all malfunctions that, in the opinion of the judges, affect the safe operation or are detrimental to the operation of the tractor have been found and corrected.

#### **E. Part I - Written Examination**

1. Contestants will complete one hundred objective type questions, true or false and multiple choice.
2. Multiple choice questions may have one or more correct answers.
3. State curriculum materials and references are available from Instructional Materials Service will be used for references.

#### **F. Part II - Appraisal of Tractor/IM**

1. Contestants will appraise 20 components or parts from agricultural tractors/machines. They will recommend service, needed or not needed, for each component.
2. Service data from manufacturer's service manuals or IT service manuals will be provided where specifications are needed in order to make the evaluations.
3. Contestants are required to wear industrial quality eye protection as they compete in this phase of the contest.
4. **All teams will provide their own measuring devices for the components evaluation.**

## G. Part III - Locating and Correcting Malfunctions in Agricultural Tractors

1. A school team of three contestants, working as a group, will compete with the teams from the other schools in locating and correcting five deliberately placed malfunctions in diesel fueled tractors.
2. All tractors will have the same malfunctions installed and service work orders listing owner/operator comments on service needed will be provided.
3. All tractors used may or may not be the same make and model, so procedure and difficulty for correcting similar malfunctions may vary.
4. All systems of the tractor may be considered during the selection of malfunctions such as:
  - Electrical system
  - Engine and power train systems
  - Hydraulic system
  - Chassis, safety, and handling systems
5. The malfunctions may or may not have an immediate detriment to the starting or performance of the tractor.
6. Each team will furnish their own box of tools, test equipment, drip pan, and a fire extinguisher. The time limit for this phase of the contest is 30 minutes.
7. Contestants are required to wear industrial quality eye protection during this phase of the contest.
8. When the team has located and corrected the malfunctions, a designated driver will operate the tractor in a safe manner around the driving course in the arena.
9. **Contestants are to notify judges of any deficiencies concerning: transmission and/or hydraulic fluid, battery condition, coolant, and or crankcase oil.**
10. Time will terminate after the driver has parked the tractor and turned the key in to the time/score keeper.
- ~~11. Liquid-filled 0-5,000 p.s.i./0-35,000 kPa dual-scale dial gauges equipped with adapters to fit the hydraulic remotes on the tractors used for the event are to be provided for each team participating in Part III.~~
10. **Any special equipment that is not specifically listed on the tools list will be provided by the contest officials.**
11. **A copy of the recommended tools list can be found on the CDE page of the Texas FFA website. [www.texasffa.org/cde-tractor-tech](http://www.texasffa.org/cde-tractor-tech)**

**Additional rules are posted to current Houston Livestock Show and Rodeo Exhibitor Handbook**

## III. SCORING

- A. **Top Ten Teams from Parts I and II will advance to Part III of the Tractor Tech Contest. Scores will be determined by the sum of all team members scores from Parts I and II of the contest.**
- B. **Overall Team Scores will be determined by the sum of the following:**
  - 3 Individual Scores from Part I
  - 3 Individual Scores from Par II
  - Total Team Score from Part III
- C. **Overall Individual Scores will be determined by the sum of the following:**
  - Part I Individual Score
  - Part II Individual Score

### 1/3 Team Score from Part II

#### IV. TIEBREAKERS

- A. In case of a tie, the winner will be determined in the following sequence:
1. The team having the highest score on Part II shall be declared winner. If still tied;
  2. The team having the highest score on Part III shall be declared winner. If still tied;
  3. The team having the highest score on Part I shall be declared winner. If still tied;
  4. The team having the high individual score on Parts I and II shall be declared winner. If still tied;
  5. Teams will be accompanied by their advisor and will meet with contest officials who will conduct a coin toss to determine the higher placing team.
- B. ~~Individual awards will be based on the highest score on Parts I and II.~~ In case of a tie, the winner will be determined in the following sequence:
1. The contestant having the highest score on Part II (components) shall be declared winner; if still tied;
  2. The high team score will be used to determine the winner; or if still tied,
  3. Contestants will be accompanied by their advisor and will meet with contest officials who will conduct a coin toss to determine the higher placing individual.

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