

TRACTOR TECHNICIAN

•3 Member Team•

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 everyday 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: AgBu 121, Introductory Agricultural Mechanics; AgSc 221, Introduction to Agricultural Mechanics; AgSc 323, Agricultural Power Technology; AgBu 421, Agricultural Power and Machinery-Agricultural Industry and AgBu 422, Agricultural Mechanics-Agricultural Industry.

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) A team member is not eligible to complete more than one time in the State FFA Tractor Technician Career Development Event.
 - c) Each team member at the state contest shall wear an official FFA jacket when competing in Part III.

B. Team Eligibility

1. Two teams from each of the ten 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 two teams, the state quota of ten teams shall be completed by using the rank order scores for Parts I and II of all teams (excluding the first 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. 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) ANZI Z87.
2. Due to possible damage to the computers and other solid state components, test lights will not be

permitted. Digital multimeters are recommended and shall have a minimum of 10 or more megaohms input impedance.

3. Each team will provide their own box of tools and test equipment for participation in Part III.
4. Type ABC fire extinguishers with a minimum 2.5 pound capacity will be provided by each team for participation in Part III.
5. 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.
6. 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 teaching 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. Tractors will be numbered and available, *if time permits*, for inspection by the coaches and team members from 1:15 to 1:30 p.m. Minor corrections and adjustments may be requested at this time.
8. Each contestant is to bring ten copies of a one-page resume.
9. 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.
10. 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.
11. Awards to the top five individuals in Parts I and II will be presented.

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. Equipment needed to make evaluations will be provided.
4. Five conditions will be listed for each component.
5. Contestants are required to wear industrial quality eye protection as they compete in this phase of the contest.

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 an official FFA jacket and 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. Time will terminate after the driver has parked the tractor and turned the key in to the time/score keeper.
10. 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.

Rules are also included in the current Houston Livestock Show and Rodeo Premium List

III. 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. The coaches for each team shall match for the high award.
- 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. The coaches shall match for the individual award.

IV. AWARDS

Plaques will be awarded to the first, second, and third place teams.

Texas FFA Tractor Technician CDE
Safe and Appropriate Tractor Operation
Revised 11-16-01

1. The operator shall be in the seat of the tractor when engaging the starter motor or attempting to start the engine.
2. The transmission shall be placed in neutral or park and the clutch disengaged before attempting to start the engine.
3. The operator shall assure that all team members are in a clear, safe position prior to engaging the starter motor or attempting to start the engine.
4. The starter motor shall not be engaged for over 30 seconds at a time. If the starter motor is engaged for over 30 seconds, a minimum of 1 minute cool down period shall be allowed before it is engaged again.
5. All actions taken during testing, adjusting, repair, and operation of the tractor shall be completed in a prudent manner and in compliance with the manufacturer's recommendations.
6. All guards, shields, cowlings, etc. shall be installed prior to driving the tractor.
7. The operator shall wear the seat belt during the test drive.
8. Flashers and running lights shall be on when the tractor is being driven on test course.
9. Tractor motion shall be started smoothly by releasing the clutch in a slow, smooth manner.
10. The appropriate gear and r.p.m. for the test drive will be announced and the tractor shall be operated in or below the designated gear and at or below the designated r.p.m.
11. The operator shall not enter the test course unless a safe distance is available ahead of an approaching tractor. Tractors on the test course shall have right-of-way.
12. The operator shall not pass another tractor on test course, unless instructed to do so by the event traffic director. If a tractor is operating poorly and/or not maintaining appropriate speed, the event traffic director may permit faster traveling tractors to pass the slow moving tractor.
13. Tractor shall be driven in safe manner and a safe following distance of at least three (3) tractor lengths shall be maintained if following a tractor on the test course.
14. Upon completion of the test drive, the tractor shall be stopped in a smooth manner, transmission placed in neutral or park position, brakes set, tractor key turned off, and the operator shall dismount in a safe manner.
15. A grade of F will be awarded if the operator does not follow the designated test course.

TEXAS FFA TRACTOR TECHNICIAN CAREER
DEVELOPMENT EVENT
HOUSTON LIVESTOCK SHOW & RODEO

PART II

Appraisal of Used Agricultural Tractor and Machinery Components

Component:

Make and model of tractor or machine from which component was selected:

Provided with component:

Instructions for appraisal of component:

Visually inspect the _____ and use the _____ provided to perform the _____ test required to answer the following questions.

Use a No. 2 pencil to fill in the appropriate bubbles on the Scantron sheet. Each statement should be marked in the 'T' column if the statement is true, or in the 'F' column if the statement is false. Be sure to mark your responses in the correct location on the Scantron sheet.

Condition of component and service recommendations:

Service Work Order
Texas FFA Tractor Technician
Career Development Events
Houston Livestock Show & Rodeo
2003

Name Houston Livestock Show
 Address Reliant Astro Hall
 City Houston Livestock Show
 State TX
 Zip 77225

Equipment Description

Make _____
 Model _____
 Serial # A Must!
 Hours If available

Parts	Qty.	Description

Customer Complaint

- 1 Engine Oil Light Stays On
- 2 Tractor Will Not Start
- 3 Tractor Looses Power at Rated RPM
- 4 Weak Auxiliary Hydraulics

Service Work Performed:

FFA Team Technician

Team # _____

Tractor Technician CDE Internship Program

The industry officials on the Tractor Technician CDE Committee initiated a summer internship program in the fall of 1997. This internship is a summer-long employment opportunity, with participating students being exposed to all aspects of operation of a local equipment dealership. Students interested in the internship program must first participate on a Tractor Technician CDE team competing at the Area level. Interested students must present a completed application when registering for their Area Tractor Technician CDE. The completed applications are then compiled and forwarded to industry representatives. Representatives for John Deere, Case-IH, Servis-Rhino, New Holland, and Kubota will forward the applications to interested local dealerships. Dealers then arrange interviews with internship applicants.

The internship program represents one of the many efforts of the agricultural equipment industry to identify, develop, and train their future workforce. Other efforts can be seen in support for the Tractor Technician CDE, involvement in the Agricultural Mechanics CDE, participation in various agricultural mechanics project shows held in Texas, and outreach programs sponsored by Darr Equipment Company.

Deere and Company provides a full one-year scholarship to the AGTECH program at Navarro College for the high-point individual of this event. The Hold 'Em and Hit 'Em Club of the HLS&R sponsors a housing stipend for the scholarship winner. Meagan Kirgan of Teague FFA won this scholarship in the 2000 CDE.

Members of the Tractor Technician Committee are also involved in the curriculum process, reviewing student materials, revising equipment lists, working with facility standards projects, and serving on curriculum advisory committees.

A review of the individual portions of the Tractor Technician CDE allows this student activity to function as an appropriate end-of-course examination for AGSC 323, Agricultural Power Technology or AGBU 421, Agricultural Power & Machinery. The Essential Knowledge and Skills for these courses are closely aligned with the event also.

Summer Intern Work Program Application Form

Area: _____

Name: _____ Age: _____

Address: _____ City: _____ Zip: _____

Phone #: (_____) _____

FFA Chapter: _____ Chapter Advisor: _____

High School: _____ GPA - Ag: _____ General: _____

Address: _____ City: _____ Zip: _____

Please list all school activities in which you participate:

Please list any hobbies you have:

Please describe your work experience and background:

Please indicate areas of interest for your work as a summer intern: (ex: Parts dept., Service, Sales. etc.)

Describe briefly why you would like to work as a summer intern at a dealership: