

JUNIOR AGRICULTURAL MECHANICS

ENTRY DEADLINE: DECEMBER 1, 2025

Superintendents: Dr. Ryan Anderson, Charles Prause, Barry Randolph

Friday, February 27

Staging/Check In: Division 14 - 15	5 AM – 8 AM	SCP
Staging/Check In: Divisions 1 - 11	5 AM – 11 AM	SCP

(Trailers will be pre-inspected at the Salado Creek Property. All rolling stock will be DOT inspected at Salado Creek Property)

Pre-Judge: Division 14-15	7 AM – 4 PM	MAC & SB
----------------------------------	--------------------	---------------------

Tractor Restoration (Mechanical)

Tractors will be pre-judged on Mechanical at this time. Unloading will no longer be scored, but standards as outlined in the unloading document will be adhered to.

Exhibitors will be asked to drive tractors prior to entering the barn. If time permits, Documentation and Knowledge will be conducted Friday afternoon. The remaining criteria will be evaluated Saturday.

Saturday, February 28

Judge: All Divisions	8 AM	MAC & SB
-----------------------------	-------------	---------------------

Sunday, March 1

Results & Awards:	8 AM	SB
------------------------------	-------------	-----------

Release:	After Awards
-----------------	---------------------

This show is subject to the San Antonio Stock Show & Rodeo General Rules, the Junior Livestock Show Rules and Special Rules listed in this section.

Judging Materials including: NDC, Judging Critiques, Reference and Worksheets are found in Competitive Events/ Agricultural Mechanics of San Antonio Stock Show & Rodeo Website. Some of these documents identified below are linked to: <https://www.sarodeo.com/p/competitive-events/ag-mechanics>

***** WELDING SKILLS DEMONSTRATION*****

- **The Welding Skills Demonstration will include entries from the following divisions.**
- **DIVISIONS 1, 2, 3, 4, 6, 8, 9, 10 AND 11**
- **The skill will be a welding demonstration that will be held at the Salado lot.**
- **The skills portion will START at 6:30 AM and will END at 3:00 PM.**
- **Each project will have 1 student that will be asked to weld a coupon. The AST/CEA will choose one (1) student to represent each project to complete the welding skills demonstration. If multiple projects are completed by a single individual, that individual will take their weld with them to each project judged.**
- **The student MUST be on the official entry card as a participant in the building of the project.**
- **A student can only weld once, even if they are entered on multiple projects. Each chosen student may only represent ONE project, regardless of the number of projects on which he/she is entered on.**
- **THE STUDENT WILL BE RESPONSIBLE FOR BRINGING THEIR OWN PPE. NONE WILL BE PROVIDED BY THE STOCK SHOW. PRESCRIPTION GLASSES AND SUNGLASSES ARE NOT ALLOWED. HEYDUDES AND OTHER SIMILAR FOOTWEAR ARE NOT CONSIDERED CORRECT PPE.**
- **The stock show will provide the coupons to be welded. Coupons will be 3/16th thickness.**

- The student will be randomly assigned a basic weld to complete. They will be allowed two attempts to complete the assigned weld. The basic weld could be one of the following weld joints: AWS D9.1 T-Joint, AWS D9.1 Lap-Joint or AWS D9.1 Butt-Joint.
- The student will have the opportunity to earn an AWS Visual Inspection Certification during this process. Certified Weld Inspectors will be on site to provide this opportunity to each student.
- The student must pick up the weld tab and if they earned a certification on Saturday morning beginning at 7:00 a.m.
- The students will be welding on a Millermatic 252 or industry equivalent.
- The coupons must be displayed with the projects on Saturday during judging.
- Every project from the afore-mentioned divisions MUST HAVE A PARTICIPANT IN THE WELDING DEMONSTRATION-NO EXCEPTIONS.

SPECIAL RULES

1. **Entry Fee:** The entry fee for each project is \$50.00. Entries must be submitted online and all official San Antonio Stock Show & Rodeo entry forms must be completed. **Exhibitor names and social security numbers are required on the entry form.** Because exhibitor cards are computer generated from entry data, it is imperative that Exhibitor Names and Project Descriptions be correct.
 - Exhibitors' names should be spelled correctly with the first letter of names capitalized.
 - Information on naming and proper classification of projects can be found in the *Naming, Describing and Classification of Projects (NDC)* document.
 - The Classification Committee has the right to reclassify any project. **Any project that does NOT easily fit within a class will be disqualified.** The decisions of the classifying committee will be final. All projects that are disqualified will NOT be allowed in the show barn. There will be NO discussion or debate concerning the committee's final decision. Further argument could lead to other or future disqualifications. Concerns with project fit should be addressed with the superintendents prior to entry submission.
2. **Eligible Entries:** Contestants must meet all San Antonio Stock Show & Rodeo Junior Show Rule Requirements.
3. **Projects:** Projects must have been constructed by FFA or 4-H members either as a part of their agricultural mechanics instruction in agricultural science or as part of their supervised work experience program. **Projects must be designed and constructed under the direct supervision and guidance of the AST/CEA.** Project dimensions – length, width and height to the nearest foot are to be provided when entering. This information will help define the space needed for the project. Gates and Panels will require only length and height. For space needed measurement, trailer length should include tongue.
4. **Individual/Group Entries:** Projects may be individually or group constructed. Entries must be made in the name of the FFA Chapter or 4-H Club. Entries must include only the name(s) and social security number(s) of those who participated in the planning and construction of the project. Group entries are comprised of two (2) or a maximum of six (6) students.
5. **Number of Entries:** No exhibitor may be involved in the construction of more than three projects, whether group or individual. This does not limit the number of projects a chapter or club may enter.
6. **Exhibit Space:** Insofar as possible projects will be displayed by class. Placement of the projects will be at the discretion of show officials. Some projects will be displayed outside.
7. **Judging Procedures:** Only exhibitors of the project may present the project to the judges.
8. **Construction Date:** A project may be exhibited only one time at the San Antonio Stock Show & Rodeo and must have been completed within one calendar year of the exhibition date.
9. **Project Substitutions:** Same as Project/Animal Substitution outlined in **General Rule #12.**
10. **Exhibitor Substitutions:** Substitution may be made under one of the conditions outlined in **Junior Rule #14.**
11. **Adding/Removing Exhibitor(s) from a Group Entry:** Group projects cannot be comprised of more than six (6) exhibitors. AST or CEA may add/remove an exhibitor from a project by submitting an *Add/Remove Exhibitor Form* to the Livestock Office by mail or email to livestock@sarodeo.com or completing the form

during Check-In at the Salado Creek Property. Exhibitor additions may be submitted by **January 15, 2025**, for no charge. Additions submitted from **January 16** until the end of Check-In will be subject to an additional entry fee (\$50). Exhibitors may be removed from a project by submitting an *Add/Remove Exhibitor Form* by the end of Check-In for no charge.

12. Types of Projects: Only those projects that fit into the stated classes will be accepted. Final project classification will be at the discretion of the Classification Committee. **Any project that does NOT easily fit within a class will be disqualified. The decisions of the classifying committee will be final. There will be NO discussion of disqualifications. Concerns with project fit should be addressed with the superintendents prior to entry submission.**

Leather goods, spurs, knives, canoes, teepees, fishing rods, boats, glass top display tables, vehicles that have been converted to cookers, pickup beds converted into picnic tables/cooking devices, bars, etc., camp trailers, benches with pickup tailgates, tiny houses, gun safes are not approved projects. Projects made of all wood are not allowed. (This is *not* a complete list) Projects made largely of wood will require at least 25% of a skill other than carpentry to be used in construction. The addition of metal ornaments or bands attached to a wood project will not be considered a part of the 25%. No repurposed structures or remodeled projects are allowed. Please read the *Naming, Describing and Classification of Projects R24 (NDC)* for additional description of classification and approved projects. **JAM allows only projects that require the skills and knowledge identified in the Agricultural Mechanics Curriculum – TEKS 130.2 (14) that fit into divisions and classes referenced in the Naming, Describing & Classification (NDC) document. Those projects that are not acceptable will not be allowed in the East Gate to be placed in barn.**

13. Vehicles: Projects will not be allowed to be displayed on trucks, tractors, trailers, or other vehicles that are not entered to be exhibited and will not be allowed in the exhibit area. If a vehicle needs to be a part of a display Superintendents must grant permission before the submission of entry.

14. An Ag Mechanic Project entered in the Ag Mechanic Marketplace Competition that has been disqualified for any reason WILL NOT be Permitted to enter, exhibit and participate in the JAM Project Show.

15. Project Completeness: All projects must be complete including finish. Any item necessary for use of the project must be a part of the project (example: hinges and latches on gates and panels). Documentation (all 4 components) is considered part of the project. Refer to *Special Rule 18 - Documentation & Research*.

16. Project Presentation: Criteria to be considered for Showmanship:

- Neatness of project** – Clean and free of dust and debris.
- Neatness of surroundings** – Includes floor under and around the project.
- Documentation** – Presented in a manner that judges and the public can view. Awards, exhibitor cards, ribbons, or other materials from other or previous project shows should not be included in the documentation or display.
- Signs** – All projects are to be identified with the official exhibitor card. Other signs, banners, etc. are subject to approval by the Superintendent. **No For Sale signs and/or Raffle Ticket Sales on Ag Mechanic Projects for fundraising purposes throughout the duration of the Jr. Ag Mechanic Show.** Basic dealership stickers consistent with stickers used at the respective dealerships will be allowed on reconditioned equipment in Div 15.
- Exhibitor Card** – It is recommended that the exhibitor card be placed in a clear plastic sleeve and affixed neatly to the front center of the project. Exhibitor Cards must be on projects after arrival at show grounds. After set-up completion, the exhibitor card must be fixed to the project or the project will be subject to disqualification.
- Sponsors** – Sponsors of a project may be identified with PRIOR approval of Superintendent
- Logos** – Do not use company logos on projects unless provided a limited use agreement.
- Inappropriate Silhouettes** – Inappropriate silhouettes, cutouts, or inappropriate slang references should not be used on projects.
- Safety** – All safety procedures must be adhered to when displaying projects. Oxygen and fuel cylinders, acetylene or propane are not allowed. Projects where acetylene bottles are not stored vertically are automatic white ribbons.
- Clutter** – Exhibitors should confine paraphernalia, chairs, show boxes, cleaning supplies, brooms, and wiping rags to their assigned display area.
- Painting/Scratches** – Paint is not allowed in the display area. Judges will be instructed to make allowances

for scratches or damage due to transportation or off-loading.

17. Exhibitor Presentation: Criteria to be considered for Showmanship:

- a. **Attire** – Exhibitors should be dressed appropriately and be with their project when it is judged.
- b. **Sportsmanship** – Exhibitors should be courteous and helpful to those viewing their project, including those exhibiting next to them. Exhibitors should not interfere with or shield those who are exhibiting next to them.
- c. **Knowledge** – Exhibitors should be available to answer questions when their project is being judged. Knowledge of the project will be evaluated at this time. Knowledge is part of Presentation on Judging Criteria. Exhibitors should be well informed of the project they are representing.
- d. **Exhibit Aids** – Exhibitors should provide any equipment that may be necessary to judge their project (flashlights, mat or creeper for judging projects where the judge needs to get under project such as trailers). Exhibitors may be requested to hold measuring tape and assist the judge in taking measurements of the project.
- e. **Naming Project** – Proper project name and classification will be reflected on the Exhibitor Card. See [Naming, Describing & Classification of Projects \(NDC\) R26](#).

Note: At least one chapter/club exhibitor should be available to answer questions from the public or show officials, including showmanship and documentation judges at all times.

17. Documentation & Research: Documentation is considered a research portfolio and should not be constructed as a scrapbook. Documents should be easy to read and arranged neatly in a tabbed notebook with Table of Contents and numbered pages. Additional explanation for Documentation is found in the Documentation *Check Sheet*. Documentation for Tractor Restoration is explained below, Rule 27c.

Documentation & Research Package must include the following four components: (Documentation & Research Package Template is available on website).

- a. **Working Drawing:** Must include an original (exhibitor-drawn) multi-view orthographic projection drawn to a given scale with proper lettering and dimensioning. The scale must be identified on the drawing. The dimensions shown on drawing should be specific and complete enough for it to be apparent that drawing was used to plan and construct a project. Judges will spot check dimensions on projects to see if they comply with drawings. Drawing may be pencil or CAD (Computer Aided Design). Pictorials, isometric, oblique or perspective may be included.
- b. **Bill of Materials (BOM):** Must include a list or a description of material, including columns 1) Date, 2) Description, 3) Size, 4) Quantity, 5) Unit, 6) Cost per item, 7) Extended or Total Costs. Other information such as, OC (Opportunity Cost) to identify items that were donated but have value, PE (Professional Expenses) to identify work done by others, sum of all (Total Costs) cost including OC and PE should be shown in BOM. Vendor's name and/or Purchase Order Number, etc. may be included. Invoices or Sales Receipts are recommended to be included with the BOM, but do not replace the BOM. BOM may be developed using a computer spreadsheet program.
- c. **Photographs:** Show work in progress and should illustrate proper safety procedures including clothing, eye and face shields, etc. Photographs should be sequenced in the order of constructing the project. Exhibitor(s) should be in pictures. CEA/AST should be in some of the pictures. Pictures must be of good quality with labels identifying activity and exhibitor(s) in the picture. No more than 40 pictures may be included, with the exception of Tractor Restoration, and Reconditioning Classes. Two, but no more than four pictures per page is recommended. Pictures should be labeled identifying the person(s) in them and skill. Additional photographs may be displayed in a separate notebook for public viewing or may be displayed using a computer display if electricity is available. Videos may also show construction, but computer displays and videos do not substitute for the photos required in the documentation notebook.
- d. **Research - Papers to be included:**
 - i. All projects attaching to tractors and/or PTO must include the latest appropriate ASABE Standards - Special Rule 21. Instructions for accessing the ASABE standards are found at www.jamshow.org.
 - ii. All Projects pulled on public highways must include relevant DOT codes including Federal Lighting Table, - Special Rule 20 Federal Lighting Equipment Location Requirements can be downloaded from the website.
 - iii. Product Information (PI) bulletins and/or Safety Data Sheets (SDS) or (MSDS) must be germane to

the project and should include paints and chemical supplies, etc. Manufacturer's specifications or PIs for trailer and equipment components such as axles, springs, wheels, jacks, break-aways, and hydraulic cylinders should be included.

Projects having no documentation are not complete and will be disqualified.

18. Project Safety:

- a. **Display:** Appropriate and safe display stands must be provided for gates, panels, and other projects requiring support. Sharp edges and points, such as found on roofs of self-feeders, bale movers, etc.; must be padded and/or protected where necessary to prevent possible injury to spectators and exhibitors.
- b. **General Safety:** Flammable and/or combustible liquids shall not be stored or sprayed in buildings, or on the show grounds. This shall include, but not limited to enamel paints, thinners, reducers, or gasoline. No cylinders (oxygen, acetylene, or propane) are allowed. Electric extension cords must not cross aisles used as exit ways.
- c. **Projects with Engines:** No more than 2 inches of fuel depth is allowed in any fuel tank. The fuel tank cap must be in place. A fuel cap does not need to be taped. All batteries, except tractors must be disconnected. See Tractor Safety below.

19. Transportation Statutes: All trailers and other equipment that will be operated and/or transported on public roads must be equipped with safety equipment specified in Codes of Federal Regulations, Title 49 Transportation, parts 300 to 399. No Agriculture Exemptions except farm tags are allowed. See the website for *JAM Trailer Rules and Codes*. All trailers and tongue equipment pulled on highways will be pre-inspected at the Salado Creek Property.

- a. Trailer wiring, lights and brakes will be tested. Colors of conductors in the wiring harness should meet industry standards. See *Trailer Construction Guide*. The trailer must be grounded to the vehicle with grounding wire in harness. (Trailer grounding only through hitch is not acceptable.)
- b. All trailers must have a Vehicle Identification Number (VIN) or Serial Number (SN) or Trailer Identification Number (TIN) placed on the tongue. SN, VIN or TIN will not be used to check registration. All trailers that are pulled to the show must have a license plate. May use Farm Tag.
- c. All tongue equipment that are pulled on a public highway – for example: trailers, squeeze chutes, hydraulic log splitters, mowers, tillage tools, sprayers, etc. will be DOT inspected at Salado Creek Property for approved (1) safety chains, (2) tongue jacks, (3) lights and reflectors.
- d. All trailers rated at 4500 pounds GWR or greater must have approved brakes, safety chains and break-away equipment. This includes bumper pull as well as gooseneck trailers. See *Trailer Check Sheets and Construction Guide*.
- e. All trailers must be equipped with lift jacks for hitching and unhitching including goosenecks and tongue.
- f. Tie down attachments (D Rings) (minimum of 4) are recommended on all utility trailers.
- g. Fender Wheel Clearance – Judges will abide by specifications provided in PI documents. General specifications are: (a) Four-inch fender clearance above the tire is required with exceptions of (b) torsion axle 3 inches and (c) single axle trailers 3 inches. Fenders must be wider than tire tread, so the edge of the fender does not cut the tire.
- h. Any trailer that is over width (102 inches) must have a signed **Texas** over-width permit. **No Out-of-State over-width permits will be accepted.** Current over-width permit must be presented at the time of DOT inspection. Trailer widths will be measured at the widest point on the trailer, metal to metal. Permit dates must include days in transportation to and from the JAM show. Review *Trailer Construction Guide* for major codes and rules. It is the exhibitors' responsibility to review and understand all TxDOT and Federal Codes.

Any trailer that is over 102 inches in width without a permit will be discounted 10 points. Over wide without a permit does not designate disqualification for the show.

20. ASABE Standards: All three-point hitch and/or PTO operated equipment must meet the latest ASABE (The Society for Engineering in Agricultural, Food, and Biological Systems) standards. Both standards have been revised in the past six years. Must have the ASABE approved code and monthly password to access and print documents from the ASABE Technical Library. Codes are available through December. Standards should be downloaded in time for use in planning and construction of a project. Instructions to access ASABE Standards along with monthly codes as well as other important links to helpful information can be found on the website. If

you have questions or need additional help, please contact one of the superintendents - Charles Prause prausecharles63@gmail.com; Barry Randolph stabar05@centex.net; Dr. Ryan Anderson r_a461@txstate.edu.

- a. **Power take-off equipment** must meet ASABE standard, *Agriculture Tractors - Rear-mounted power take-off types 1, 2, 3 and 4 – Part 3: Main PTO dimensions and spline dimensions, locations of PTO*. This Standard was revised **2019**. When searching ASABE to find and download a PDF file - enter Document number ASABE/ISO 500 or title of Standard.
- b. **3 Point linkage must meet ASABE standard**, *Agricultural wheeled tractors - Rear Mounted three-point linkage- Categories 1N, 1, 2N, 2, 3N, 3, 4N, and 4*. To find and download the PDF enter AD730 for document number or name of title of Standard. This document was **revised March 2015**.
- c. Copies of the most recent ASABE standards must be included in the Research Section of documentation for those projects that apply. There are additional related standards – these related standards are optional for including in research documentation.

21. **Loss or Damage:** Every precaution will be taken to protect projects, however, neither the San Antonio Stock Show & Rodeo nor the show officials will be responsible for any loss or damage to projects including tractors and unloading and loading them.

22. **Projects Needing Off-loading Assistance:** Projects that must be hoisted from the topside are to be fitted with lifting eyes at balance points that will accommodate one-inch shackles. Trailers that are transporting both tractors and other projects should be arranged so the tractor can be offloaded separate from other projects. Projects that Show Officials conclude cannot be safely off-loaded with equipment available may be shown on the trailer at an alternate site.

23. **Project Show Judging Criteria – *excluding Tractors*.**

JUDGING CRITERIA	Points
Workmanship	30
Design & Materials	20
Documentation & Research	20
Presentation – Entering Projects (Special rule 1) and Demonstration of Technical Knowledge	20
Degree of difficulty – Sophistication	5
Safety	5
Total	100

- **Ribbon Awards are Blue, Red and White.** Ribbons are used in both Project Show and Tractor Show. Only Blue-Ribbon projects are eligible for placing.
- Descriptions of Judging Criteria are found on *San Antonio JAM Judges Evaluation Summary (Critique Sheet) R22*
- Showmanship Award – Criteria is identified on the Showmanship Score Card on the website. Criteria are similar for both Project and Tractor Shows.

Division 14 & 15 Skills Demonstration

New this year: All participants in Division 14 & 15 will complete a skills demonstration on Saturday during the down time in between judging. The participants will visit the agricultural equipment dealer booths at the trade show where each of the dealers will have a skills demonstration activity set up for the participants to complete. The demonstrations could include but are not limited to: correctly demonstrating how to use a torque wrench, how to use a micrometer, and determining if a part is in or out of spec.

24. Requirements for Division 14 - Tractor Restoration and Division 15 - Reconditioning, Diagnostics and Repair:

- a. Tractor Serial Numbers must be included with the Description on Entry Form and Exhibitor Card
- b. Tractor Exhibitor Cards must be on tractors when they are off-loaded on Friday morning at show grounds.
- c. Unloading and loading will be under the direction of show officials. See Special Rule 27d below.
- d. Tractor may be started and driven only at the request of show officials.
- e. All steel lugged wheel tractors must be fitted with road bands.
- f. All steel crawler tractors must be fitted with rubber lugs or exhibitors must provide rubber mats or belts. (Used rubber conveyor belts can be used.) Plywood sheets may be provided to get tractors into the barn without damaging asphalt or concrete surfaces.
- g. Tractor Documentation and Research package must be turned in when off-loading Friday. No changes to the package after they are submitted.
- h. Original Work Sheets completed by judges when inspecting tractors will be given to the exhibitor. It is the exhibitors' responsibility to place these worksheets unaltered in the front of their Documentation (3 ring notebooks) when documentation is returned to them. Note: Worksheets are Generic to all tractor classes with slight modifications.
- i. Exhibitors must provide for each tractor, tools including flashlight necessary to check fluid levels. Also, cloth or paper wipes, step ladder for large tractors to allow judges to check fuel and fluid levels. Tires pressure will be checked.
- j. Fuel tanks must not have more than 3 inches of fuel in the tank.
- k. Fuel shut off valves under tanks must be functional and valves closed when exhibiting tractors.
- l. A fully approved ABC fire extinguisher with a minimum of 5 lb. capacity must be provided next to the tractor. **Must be fully charged and up to date on Inspection/Service requirements!**
- m. Display area: Table or bench size should not exceed 3 ft by 6 ft. (Should not be so large to block access to tractors.) If a toolbox is used it must be sized to fit under the table. The toolbox may serve as a table.
- n. Electrical outlets are not guaranteed.
- o. Caution tape is not necessary and should not be used. Signs may be used to request the public to keep off the tractor.
- p. Drip pans under tractors should **not** be used when exhibiting tractors. Any fluid drops to the floor must be wiped up. Pans should be used at night.

25. DIVISION 14 – Restoration Class 1401 Early Model Tractors (Tractors manufactured 1950 & older), Class 1402 (Tractors manufactured 1951 – 1960), & 1403 (Tractors manufactured 1961 to Present) (Uses Restoration Judging Criteria)

Judging Criteria – Restoration Classes are designed to restore the tractor to its original condition as possible. Authenticity is considered in Division 14 classes. See Criterion descriptions below.

RESTORATION JUDGING CRITERIA	POINTS
Mechanical - Restoration	45
Documentation & Research	20
Safety	10
Aesthetics	15
Authenticity	10
Total	100
Complexity Factor (CF) Bonus Pts	15

Mechanical

i. All tractor restoration classes.

- As part of the mechanical evaluations exhibitors will be asked to start and drive the tractor, demonstrating all gears along with systems, hydraulics, lights, brakes, PTO, etc. Driving and some mechanical evaluation will be conducted outside after off-loading on Friday. Most of the safety criteria will also be evaluated at this time. Exhibitors may be asked to move tractors back outside Saturday for additional evaluation.
- Refer to *Driving, Mechanical & Knowledge Reference Sheet 1*—for more specific information.
- NOTE: Sandblasting is discouraged except on large castings such as weights, wheels and rims and components that have no moving parts. Engine blocks and heads, transmissions, clutch housings, differential and axle housing should not be sandblasted. Sandblasting can warp or distort sheet metal parts and impact aesthetics. Sand remaining from sandblasting can result in major damage to tractors. Evidence of sand will result in deducting points in Mechanical.

ii. Restoration Classes 1401, 1402, & 1403

- To include the mechanical restoration of all systems including Engine, Transmission and Final Drive.
- Including components – fuel (carburetor or diesel pump), cooling, ignition, exhaust, clutch, brakes, steering, starting, lighting, charging, hydraulics, 3 point and PTO. Some tractors may not have all of these.

Knowledge & Presentation:

- Knowledge is an important criterion in meeting JAM educational goals.

- Judges will ask technical questions to determine the exhibitor(s) knowledge of and involvement in restoration. Judges may present precision tools or tractor components for exhibitors to identify, describe and discuss.
- Presentation includes showmanship (see showmanship score card) and encompasses the following; meeting the public, making eye contact, introducing self, being confident, articulate, exhibiting enthusiasm and excitement when describing a tractor. Display area including area around and under the tractor is considered. Display items may include Owners & Technical Manuals, video equipment including computer display and worn, or broken parts replaced in restoration or reconditioning.

Documentation and Research:

- Documentation is a research portfolio and should not be considered a scrapbook. Documentation must be typed (recommend word processor and spreadsheet using computer)
- Many Exhibitors use Documentation to exhibit their knowledge and understanding of Tractors – and the skills necessary to Restore them. In the photo sections, most exhibitors expand on what they are doing using two or three paragraphs in their descriptions of each system (photo section) – transmission, engine, clutch, etc. All pictures should be labeled.
- Judges rely on the Documentation Section in addition to questioning to ascertain the knowledge and understanding exhibitors have of the different systems and components and the procedures they used. Many of the knowledge points are determined when judges are inspecting the documents, pictures and asking questions over materials they are reviewing.
- Review *Tractor Restoration Documentation Template (PDF)* on the website. This template was prepared in 2016 and requires slight modifications
- The *Documentation, Knowledge & Presentation Reference Sheet 2* on the website has more specific information. This document also needs modified slightly. Judges critique sheets are on the website.
- Documentation should be arranged in a three-ring binder, using sequenced labeled dividers with a corresponding table of contents. .
- Tractor documentation will be submitted to a judge at unloading. Documentation may not be altered after it is returned to the exhibitor.

Table of Contents - Documentation for all Classes should include Table of Contents similar to one shown below with page numbers – Refer to Template on website (Tractor could include Skid Steer)

1.	Tractor History – Previous Owners – where obtained, etc. (Max 1 page) Could include a picture of the tractor as you found it.
2.	Restoration – Summary Report including Complexity. Factors – CF (Max 1 page) Could include Picture of Completed Tractor.
3.	Expense Reports – show in spreadsheet format. Similar to BOM in the project show. <ul style="list-style-type: none"> a. Parts – Costs of all parts and supplies – invoices included with dates. Show Total Expense including Sub Totals of OC and PE. Consumable items – for example, gasket sealer – parts cleaning solution could be considered as supplies. b. Opportunity Cost – OC (identified in Expense Report with OC next to dollar value) These are items which were given/donated to you – identify their value in dollars, same as if you purchased them. Show sub-total for all OC. c. Professional Expenses – PE (Identified in Expense Report with PE notation) These are expenses incurred from taking part to professional technicians. For example, taking a diesel pump to a Diesel Shop so they can put it on the pump stand – diagnose and repair it. You are encouraged to be present when the technician is evaluating and/or repairing parts so you can learn from this. Have a picture taken of you with a professional mechanic to be included in your photos. Professionals

	should be identified in pictures. PE expenses should be presented in a report by itself with Title: <i>Professional Expenses</i> . Should have a sub-total for this category.
4.	<p>Photos – (order of presentation - disassembly – evaluation – repair) All Photos should have a title (label) or description identifying names of exhibitors performing tasks in picture. Teacher (AST) or CEA and others helping the exhibitor should be in a few of the pictures and identified. Most pictures should be technical skills illustrating for example using precision tools – micrometers, torque wrenches, small hole and telescoping gauges, adjusting tappets or clutch, timing engine, diagnosing hydraulic system with pressure gauges, etc. Exhibitors should use two or three paragraphs to explain what they are doing in the pictures in different sections. See example <i>Template</i>.</p> <ul style="list-style-type: none"> a. No more than 120 pictures with 2 pictures per page. Plastic cover sheets are not required for picture pages. b. Photos of high quality – could be on photo paper – excellent contrast and brightness. Judges will also evaluate safety issues in the pictures – gloves, face shields, spray painting, etc. c. Photos shown by sections. The sequence may be different from that depicted below. (Recondition Class will only have pictures in sections of components they diagnosed and repaired.) <ul style="list-style-type: none"> ○ Engine ○ Clutch ○ Transmission ○ Final Drive Train – Transmission & Final Drive could be combined in a Power Train Section ○ Ancillary & External components could include steering, operator comfort, controls, fuel, air filter, turbo, electrical, cooling hydraulics, brakes, etc. ○ Sheet Metal and finishing – Reconditioning class should include Aesthetic items here also. For example, was a cab kit installed? ○ Rims and Tires ○ Eye Appeal item – Decals, Trim, other – Appearance Section could include: vi, vii and viii
5.	General Specifications – Examples, Tractor Fluid Capacity chart, Tractor Horsepower, Hitch Category, Torque chart for fasteners, Valve Tappet adjustments, tractor operator controls, safety items and symbols.
6.	Research SDS and/or PI. ASABE standards including PTO and Hitch Category. See Special rule 21. All relevant Judges Check & Reference sheets. Letters, correspondence with those who advised or helped you with tractor. Owner's Manual and Parts manuals along with IT manuals are usually too large to show here. They may be books themselves, but you could reference those displayed. You may also want to identify those items or parts that you have on display.

Safety: Safety is measured in several ways. See *Aesthetics, Authenticity & Safety Reference 3* on the website. All equipment that was original to the tractor should be in place (including all shields and decals) Tractors must be in a safe operating condition and the following safety procedures must be followed.

- i. Judges will inspect photos to see if the tractor was repaired in a safe environment including painting facilities, exhibitors wearing safety glasses and or face shields, gloves, proper and safe clothing. Proper use of hoist and lifting devices, combustible materials stored properly, etc.
- ii. Safe procedures must be followed in unloading and loading tractors especially rules and regulations related to unloading, driving, and loading equipment are posted on the website. These will be strictly adhered to, and safety points deducted for infractions.
 - 1) Basic rules for driving, unloading, and loading tractors: Tractors are unloaded and loaded only under the direction of show officials. No tractor will be offloaded without supervision of show officials. Throttle setting is important in unloading, loading, and moving vehicles to and from the lot and barn. Speed and or throttle setting are critical safety considerations in all power vehicles – tractors, skid steers and yard & garden. Show officials will supervise when moving a tractor, In most cases the operator will be instructed to have the throttle in idle position
 - 2) Tractor (all powered vehicles) driver must have experience in driving and loading tractor on trailer hauling it to show. Operators must have the approval of the AST or CEA. Leader certifies that the operator meets these criteria. Diver unloading and loading the tractor may or may not be the exhibitor.

3) The unloading process will not be judged, but will be supervised for safety.

- 4) Tire pressure and tire coating will be inspected along with controls, including brakes, throttle, and clutch prior to off-loading. Tires should not have more than the recommended tire pressure.
- 5) All ramps must be fastened to trailers and designed with proper surface to provide traction. This is especially important in wet weather. The trailer must be equipped with a middle ramp if hauling a tricycle tractor. Yard & Garden Tractors may be transported in the beds of Pick-up Trucks. Proper ramps to unload must be used – attached to the truck – wide and long enough to not cause safety concern in unloading and loading.
- 6) It is the responsibility of the operator to make sure that at least 10 ft. of area around the trailer is clear. Only approved personnel may be in this area.
- 7) Truck drivers must off-load any projects that are on the back of the trailer hauling the tractor prior to off-loading the tractor.. Forklifts and other machinery will not come into the tractor unloading area unless directed by show officials.

Aesthetics: Overall appearance of tractor including workmanship and finish. Aesthetics will be evaluated for all tractor classes. Items to be considered include but are not limited to the following.

- i. Sheet Metal and FiberGlass body parts preparation prior to painting or waxing.
- ii. Painting tractor, skid steer or yard & garden in the Reconditioning class is optional. Detailing is required even if they are not painted.
- iii. Painting and finishing in Restored Classes. Clear coating is not recommended. The paint color should be the same as the original. See *Aesthetics, Authenticity & Safety Reference 3* on the website.
- iv. Detail and completeness of components – cabs, steering wheels, seats, controls, and gauges, wiring harness, hoses and belts, are considered.

Authenticity: (Restoration Tractor classes only). Must be as original as possible. See *Aesthetics, Authenticity & Safety Reference 3* on the website. Authenticity is **not** considered in Repair and Reconditioning Classes 1501, 1502 and 1503. Items considered in Authenticity:

- i. Paint color should be the same as the original. Some items may remain not painted – aluminum parts such as magnetos, injector pumps. Other unpainted components – belts, hoses, wiring harnesses (see instructions in *Aesthetics, Authenticity & Safety Reference 3 - R26*)
- ii. Mechanical systems – fuel, electrical, engine, transmission, final drive, PTO and 3 Point hitch, cooling, etc. should be restored to their original condition.
- iii. Original Serial plates in place with unaltered serial numbers.

Note: Authenticity – does not prevent updating or improving the efficiency and performance of a tractor for field work using manufacturer upgrades. This applies especially for the later model tractors. Examples would be replacing the refrigerant R12 and equipment with 134A. Other examples include improved mechanical parts such as hardened valve seats, improved cylinders, rings, pistons, seals, and bearings. Alternators and other external parts should **not** replace generators, etc., on older tractors shown as antiques. Six-volt systems should **not** be converted to twelve volts.

Complexity Factor: Up to 15 points may be added to reward exhibitor(s) for difficulty or sophistication of work conducted on a tractor. Examples could be tractors that have AC units and Cabs, sophisticated transmissions, hydraulic, electrical systems. Work and research shown rebuilding or repairing original parts beyond the normal repair instead of purchasing new ones. Welding cast iron parts where preheating and post heating was necessary, building up a shaft and turning down on lath or hard surfacing or building up teeth on a gear are all examples. Evaluating a tractor on a PTO dynamometer could be considered a Complexity Factor and is also a diagnostic function.

26. Additional Resources: In addition to working with Dealers and other professional mechanics, exhibitors and leaders are encouraged to get on the website and using a monthly code to access the ASABE technical library to download the Tractor and PTO standards. Although these standards apply to the later model tractors, they are relevant to early model tractors and machinery, for example hitch categories and PTO sizes and number of splines. Standards identify specifications that make different machines compatible with tractors, including early model tractors. It is important for the exhibitor to learn how to search technical libraries such as ASABE, print them out and interpret them. Service men working with the later model more sophisticated tractors and machines must rely on technical documents to diagnose and repair them. JAM website provides additional technical materials to help in our educational objective. Many of these have been identified in other Sections regarding tractors.

27. DIVISION 15 – Class 1501 (1961 to Present -Tractor Repair & Reconditioning)

Class 1502 – Skid Steers, Backhoes, Compact Construction Equipment (CCE) (Compact Construction Equipment cannot exceed 20,000 lbs. based on manufacturer specification sheet) (1961 to Present - Repair & Reconditioning) and Class 1503 – Yard & Garden Tractors (1961-Present - Repair & Reconditioning).

Judging Criteria (Tractors 1961 to present) Explanation – Reconditioning Classes do not require Tractor, Skid Steer or Yard & Garden Tractor Classes to be completely Authentic. After-market components may be used to replace the original OEM parts. Repair and Reconditioning involves maintenance and repair of only those components needing maintained, repaired, and reconditioned.

REPAIR AND RECONDITIONING JUDGING CRITERIA	POINTS
Repair & Maintenance & Diagnostic	50
Documentation & Research	30
Safety	10
Aesthetics	10
Total	100
Complexity Factor (CF) Bonus Pts	15

See Explanations of judging criteria below - both Restoration and Repair & Reconditioning classes.

DIVISION 15 - CLASS DESCRIPTIONS (Recondition, Diagnostic, Repair Classes)

1501 Tractors – Tractor Repair & Reconditioning - 1961 to Present (Uses Repair & Reconditioning Criteria)

Class 1502 – Skid Steers, Backhoes, and Compact Construction Equipment (CCE) (Compact Construction Equipment cannot exceed 20,000 lbs. based on manufacturer specification sheet) Repair & Reconditioning, 1961-Present (Uses Repair & Reconditioning Criteria)

1503 Yard and Garden Tractors – 1961 to present Repair and Reconditioning. (Uses Repair & Reconditioning Judging Criteria.)

- Maximum Power – 30 Engine HP
- Maximum Diameter of metal rims for wheels – 16 inches
- Zero Turn mowers are allowed in this class.
- No ATV's, UTV's or racing pulling mowers or other home-built tractors are allowed.
- Tractor should be near the original function and if applicable include its mower deck. (Ex. Zero Turn Lawnmower)
- *Tractors with rear-mounted power take-off (PTO) attachments are optional.*
- Worn or old components should be repaired or replaced – including belts, hoses, tires, wiring harnesses and electrical terminals including starting motors if equipped, switches and lights.
- All safety devices – sensors, safety switches, labels, ROPS and seat belts that were included on the new tractor – are required.
- All safety guards must be functional and in place.

- Any Optional equipment/components attached to the tractor must be in good repair. For example, a tractor may be equipped with a front end loader, operators' canopy, optional lighting, and etc.
- All maintenance should be performed and noted. Replacing fluids, adjusting belt tensions and tire pressures. Engine components such as oil and air filters, lubrication, spark plugs and points, air gaps on magnetos are examples of maintenance items.
- Authenticity is not required. Parts may be replaced including engine with aftermarket components – Keeping them approximately the same size and power as original. If a replacement engine is used, criteria for the engine selection should be included in documentation.
- OEM Components may be replaced with improved, more up-to-date after-market parts.
- Aesthetics is considered but may not require complete body work and repainting. Painting schemes and colors that are used should be near original. Improved Resale Value should dictate the degree of Aesthetics. Sheet metal should be repaired including rust removal, welding, and painting to prevent rust. Fiberglass parts should be repaired, and these repairs should be painted. Tractors should be washed and clean. Waxing of the original finish is recommended to prepare the tractor for exhibition.
- Diagnosis is an important judging criterion – see Division 15 – Reconditioning & Repair Judging Criteria
- The more complex diagnostics and repairs should be documented, or time lapses videoed and made available to judges along with pictures as required in documentation.
- ASABE standards are not required. Other appropriate standards such as SAE, API and others should be included.

EXPLANATIONS OF BOTH, RESTORATION, AND REPAIR & RECONDITIONING JUDGING CRITERIA

NOTE: In explanations below the term “Tractor” may include Skid Steers and Yard & Garden Tractors.

Knowledge & Presentation:

- Knowledge is an important criterion in meeting JAM educational goals.
- Judges will ask technical questions to determine the exhibitor(s) knowledge of and involvement in restoration/reconditioning. Judges may present precision tools, tractor, or skid steer components for exhibitors to identify, describe and discuss.
- Presentation includes showmanship (see showmanship score card) and encompasses the following: meeting the public, making eye contact, introducing self, being confident, articulate, exhibiting enthusiasm and excitement when describing a tractor. Display area including area around and under the tractor or skid steer is considered. Display items may include Owners & Technical Manuals, video equipment including computer display and worn, or broken parts replaced in restoration or reconditioning.

Documentation and Research:

- Documentation is a research portfolio and should not be considered a scrapbook. Documentation must be typed (recommend word processor and spreadsheet using computer)
- Many Exhibitors use Documentation to exhibit their knowledge and understanding of Tractors – Skid Steers and the skills necessary to Recondition them. In the photo sections, most exhibitors expand on what they are doing using two or three paragraphs in their descriptions of each system (photo section) – transmission, engine, clutch, etc. All pictures should be labeled.
- Judges rely on the Documentation Section in addition to questioning to ascertain the knowledge and understanding exhibitors have of the different systems and components and the procedures they used. Many of the knowledge points are determined when judges are inspecting the documents, pictures and asking questions over materials they are reviewing.
- Review *Tractor Restoration Documentation Template (PDF)* on the website. This template was prepared in 2016 and requires slight modifications, for example, skid steers should be included along with up to date documentation requirements.

- Documentation should be arranged in a three-ring binder, using sequenced labeled dividers with a corresponding table of contents.
- Tractor documentation will be submitted to a judge at unloading. Documentation may not be altered after it is returned to the exhibitor.

Table of Contents - Documentation for 1501, 1502, 1503 Classes should include Table of Contents similar to one shown below with page numbers

1.	INTRO Tractor, Skid Steer, Backhoe, Compact Construction Equipment or Yard & Garden Tractor History – Previous Owners – where obtained, etc. (Max 1 page) Could include a picture of the machine as you found it.
2.	WORK ORDER These sheets are forms tractor dealers use when a tractor or machine is brought to them by farmers for repair. It is suggested that you use the local dealers' forms/sheets. <ul style="list-style-type: none"> a. Customers help the dealer fill this form out when the customer brings in equipment or tractor to be repaired. It includes all the information regarding the customer, such as name, address, phone, email etc. It also identifies the machine(s) and or tractor(s) brought in. An important part of this form is asking the farmer to identify or describe the problem (issue) – why the machine was brought in. b. The technician fills out this form after he has inspected the machine and lists all items that are needed to repair or fix the problem. The form is presented to the customer for him to sign authorizing necessary parts and repairs prior to repair. <ul style="list-style-type: none"> - This report will describe the processes the students have gone through to find, diagnose, and repair an issue or simply preventatively test these function - Document labor hours within the diagnostic testing per sublet repair/diagnostics - THE IN DEPTH procedures and repairs will be included in an EXPANDED SERVICE REPORT with pictures and desired/actual results of tests due to the information being too lengthy to include in the work order. - The issues DO NOT HAVE to be repaired in cases the “customer” denies the repair HOWEVER THE GROUP MUST BE ABLE SHOW THE PROCESS OF GETTING THAT RESOLUTION FOR THAT NEEDED REPAIR ○ Engine ○ Clutch ○ Transmission ○ Final Drive Train – Transmission & Final Drive could be combined in a Power Train Section ○ Ancillary & External components could include steering, operator comfort, controls, fuel, air filter, turbo, electrical, cooling hydraulics, brakes, etc. ○ Sheet Metal and finishing – Reconditioning class should include Aesthetic items here also. For example, was a cab kit installed? ○ Rims and Tires/Track systems ○ Eye Appeal item – Decals, Trim, other – Appearance Section could include: vi, vii and viii <p>MUST BE DOCUMENTED IN A WORK ORDER FORMAT</p>
3.	Repair & Maintenance & Diagnostic (In depth service reports)

	<ul style="list-style-type: none"> - This is where your service reports will be inserted into the documentation . - Service Reports section can be completed in a number of ways but it must include the following <ul style="list-style-type: none"> 1. Project Labor Hours (exhibitor and professional) 2. Completed service Invoice 3. Sublet Repairs (invoice for work or work order) 4. Verification and Repair of Complaint
4.	<p>Service Invoice – MUST shown in a Professional Invoice format. Similar to how dealers conduct their work orders and invoices .</p> <p>d. Parts – Costs of all parts and supplies – invoices included with dates. Show Total Expense including Sub Totals of OC and PE. Consumable items – for example, gasket sealer – parts cleaning solution could be considered as supplies.</p> <p>e. Opportunity Cost – OC (identified in invoice with OC next to dollar value) These are items which were given/donated to you – identify their value in dollars, same as if you purchased them. Show sub-total for all OC.</p> <p>f. Professional Expenses – PE (Identified in invoice Report with PE notation) These are expenses incurred from taking part to professional technicians. For example, taking a diesel pump to a Diesel Shop so they can put it on the pump stand – diagnose and repair it. You are encouraged to be present when the technician is evaluating and/or repairing parts so you can learn from this. Have a picture taken of you with a professional mechanic to be included in your photos. Professionals should be identified in pictures. PE expenses should be presented in a report by itself with Title: <i>Professional Expenses</i>. Should have a sub-total for this category.</p> <p>g. Labor - will include the groups labor hours(with a monetary value) involved in every aspect of this project Documented in the work order itemized by repair or testing procedure. Then included in the Final invoice .</p> <p>h. EXPENSE REPORTS CAN BE A BASIC EXPENSE REPORT HOWEVER THERE MUST BE A FINAL INVOICE (based off of the work order and service reports)</p>
5.	General Specifications – Examples, Tractor Fluid Capacity chart, Tractor Horsepower, Hitch Category, Torque chart for fasteners, Valve Tappet adjustments, tractor operator controls, safety items and symbols.
6.	Research SDS and/or PI. ASABE standards including PTO and Hitch Category. See Special rule 21. All relevant Judges Check & Reference sheets. Letters, correspondence with those who advised or helped you with tractor. Owner's Manual and Parts manuals along with IT manuals are usually too large to show here. They may be books themselves, but you could reference those displayed. You may also want to identify those items or parts that you have on display.

Mechanical

iii. All tractor classes.

- As part of the mechanical evaluations exhibitors will be asked to start and drive the tractor, demonstrating all gears along with systems, hydraulics, lights, brakes, PTO, etc. Driving and some mechanical evaluation will be conducted outside after off-loading on Friday. Most of the safety criteria will also be evaluated at this time. Exhibitors may be asked to move tractors back outside Saturday for additional evaluation.
- Judges will be judging the diagnostics into the mechanical sections listed in the table of contents for division 15
- Refer to *Driving, Mechanical & Knowledge Reference Sheet 1*–for more specific information.
- NOTE: Sandblasting is discouraged except on large castings such as weights, wheels and rims and components that have no moving parts. Engine blocks and heads, transmissions, clutch housings,

differential and axle housing should not be sandblasted. Sandblasting can warp or distort sheet metal parts and impact aesthetics. Sand remaining from sandblasting can result in major damage to tractors. Evidence of sand will result in deducting points in Mechanical.

Safety: Safety is measured in several ways. See *Aesthetics, Authenticity & Safety Reference 3* on the website. All equipment that was original to the tractor should be in place (including all shields and decals) Tractors must be in a safe operating condition and the following safety procedures must be followed.

- iii. Judges will inspect photos to see if the tractor was repaired in a safe environment including painting facilities, exhibitors wearing safety glasses and or face shields, gloves, proper and safe clothing. Proper use of hoist and lifting devices, combustible materials stored properly, etc.
- iv. Safe procedures must be followed in unloading and loading tractors, skid steers, backhoes and compact construction equipment or yard & garden tractors. Special rules and regulations related to unloading, driving, and loading equipment are posted on the website. These will be strictly adhered to, and safety points deducted for infractions.
- 8) Basic rules for driving, unloading, and loading tractors, (skid steers and yard & garden tractors included) Tractors are unloaded and loaded only under the direction of show officials. No tractor will be offloaded without supervision of show officials. Throttle setting is important in unloading, loading, and moving vehicles to and from the lot and barn. Speed and or throttle setting are critical safety considerations in all power vehicles – tractors, skid steers and yard & garden. Show officials will supervise when moving a tractor, skid steer or yard & garden tractor. In most cases the operator will be instructed to have throttle in idle position – especially in skid steers.
- 9) Tractor (all powered vehicles) driver must have experience in driving and loading tractor on trailer hauling it to show. Operators must have the approval of the AST or CEA Leader certifies that the operator meets these criteria. Diver unloading and loading the tractor may or may not be the exhibitor.

10) The unloading process will not be judged, but will be supervised for safety.

- 11) Tire pressure and tire coating will be inspected along with controls, including brakes, throttle, and clutch prior to off-loading. Tires should not have more than the recommended tire pressure.
- 12) All ramps must be fastened to trailers and designed with proper surface to provide traction. This is especially important in wet weather. The trailer must be equipped with a middle ramp if hauling a tricycle tractor. Yard & Garden Tractors may be transported in the beds of Pick-up Trucks. Proper ramps to unload must be used – attached to the truck – wide and long enough to not cause safety concern in unloading and loading.
- 13) It is the responsibility of the operator to make sure that at least 10 ft. of area around the trailer is clear. Only approved personnel may be in this area.
- 14) Truck drivers must off-load any projects that are on the back of the trailer hauling the tractor prior to off-loading the tractor.. Forklifts and other machinery will not come into the tractor unloading area unless directed by show officials.

Work Order : can be from a dealership, generic template, or a custom work order but must include the following

1. Customer Name
2. Machine Model
3. Machine Manufacturer
4. Machine Serial Number
5. Machine Hours at project start
6. Customer Complaints

- It is Highly Recommended that the Work order is accompanied by photos documenting the machine prior and any issues that are found with the machine during the initial inspection.

Service Reports

- **Verification and Repair of Complaint**

The Verification and Repair of Complaint Section should include any Customer

complaints from the work order. Each complaint should be verified, diagnosed, and (repaired or documented). Repairs can be as simple as a machine not starting with a dead battery or as significant as a machine not operating correctly and needing a complete engine rebuild.

An example of this would be the following

Customer Name: Jackrabbit Ranch

Machine: Case IH Maxxum 150

Machine Year: 2021

Machine Serial # j1286x3e93677

Customer Complaint: Air Conditioning does not work

Verification:

-Machine Air Conditioning does not work, visually inspected A/C belt, Compressor, and Lines.

No visual leaks or issues.

Used A/C gauges to check pressure, the system has pressure.

Checked/Tested Fuses, Good

Referred to wiring diagram, tested voltage at relay, tested relay, tested wiring between relay and low pressure switch, found there is no continuity to the switch. Examined wiring and found rodent damage.

Repair:

Fixed rodent damage by cutting and splicing the wire with Solder and Heat shrink.

Retested wiring and have continuity

Ran Machine and A/C functions, Pressures in spec

Cleaned A/C Condenser and Evaporator as per customer request

- **Diagnostic Testing**

During the Reconditioning process of the machine diagnostic testing must be completed on the Engine, Drivetrain, Hydraulics, Electrical, and HVAC or ROPS.

Testing can be any diagnostics completed in the process of Repairs, Preventative Maintenance, or exploratory diagnostics. It is highly recommended that machines undergo an extensive evaluation for proper machine operation. Judges know that not all machines can get every repair they may need after diagnostic testing is completed whether due to budget or time limitations and that is why it is recommended to document diagnostic testing well with photos and specs.

An Example for the layout of this section follows

SPEC – RESULT – RECOMMENDED REPAIR – REPAIR ACCEPTED / DECLINED

- **Preventative Maintenance (CAN BE DOCUMENTED IN SERVICE REPORT OR WORK ORDER)**

Machines exhibited in division 15 must have all preventative maintenance preformed that is recommended by the owners/operators manual for the hour interval the machine is in during the reconditioning process completed by the exhibitor/exhibitors during the reconditioning process. The judges will use the Hours documented in the work order along with the actual machine hours to guarantee the machine has had the maintenance recommended completed. In the case of a replacement dash or cluster being fitted during the reconditioning process the hours prior should be documented.

Aesthetics

Overall appearance of tractor including workmanship and finish. Aesthetics will be evaluated for all tractor classes. Items to be considered include but are not limited to the following.

- v. Sheet Metal and FiberGlass body parts preparation prior to painting or waxing.
- vi. Painting tractor, skid steer or yard & garden in the Reconditioning class is optional. Detailing is required even if they are not painted.
- vii. Reconditioned tractors, skid steers and yard & garden tractors **MUST have been pressure washed including the engine compartment.**

viii. Detail and completeness of components – cabs, steering wheels, seats, controls, and gages, wiring harness, hoses and belts, are considered.

Dealer Assistance A *Tractor Advisory Council* has been formed to help teachers contemplating entering projects in Reconditioning classes to locate a tractor dealer to cooperate with them. It is suggested that Advisory Council VP Jeff Spake (jspake@rdoequipment.com) 512-230-4413 or VP Michael Billings (mbilings@fisd.us) 210-912-6675 be contacted prior to visiting with a dealer. Either VP can help you contact a Tractor Corporate Representative who will assist you in communicating with an interested tractor dealer to work with you and your students in preparing and exhibiting a tractor, skid steer or yard & garden tractor. Teachers will want to use link to Advisory Councils Folder to access additional materials including TDCA Teacher - Dealer Cooperative Agreement for working with dealers.

It is hoped that this will help develop a connection with the dealer and eventually turn into an internship or employment for the student.

Dealers may perform warranty maintenance items on later model tractors in addition to repair. Some of these maintenance items are technical and require knowledge and skills to perform. Maintenance will help meet some of the Mechanical requirements to justify entering a tractor or skid steer in a Reconditioning Class.

Complexity Factor: Up to 15 points may be added to reward exhibitor(s) for difficulty or sophistication of work conducted on a tractor. Examples could be tractors that have AC units and Cabs, sophisticated transmissions, hydraulic, electrical systems. Work and research shown rebuilding or repairing original parts beyond the normal repair instead of purchasing new ones. Welding cast iron parts where preheating and post heating was necessary, building up a shaft and turning down on lath or hard surfacing or building up teeth on a gear are all examples. Evaluating a tractor on a PTO dynamometer could be considered a Complexity Factor and is also a diagnostic function.

28. Additional Resources: In addition to working with Dealers and other professional mechanics, exhibitors and leaders are encouraged to get on the website and using a monthly code to access the ASABE technical library to download the Tractor and PTO standards. Although these standards apply to the later model tractors, they are relevant to early model tractors and machinery, for example hitch categories and PTO sizes and number of splines. Standards identify specifications that make different machines compatible with tractors, including early model tractors. It is important for the exhibitor to learn how to search technical libraries such as ASABE, print them out and interpret them. Service men working with the later model more sophisticated tractors and machines must rely on technical documents to diagnose and repair them. JAM website provides additional technical materials to help in our educational objective. Many of these have been identified in other Sections regarding tractors.

Skid Steers and most Yard & Garden tractors do not have three-point hitches and PTO shafts. Skid Steer specification regarding Quick Hitches (newer tractors also use Quick Hitch systems for front end loader attachments) and other specifications regarding skid steers are published in the Society of Automotive Engineers (SAE) literature. The Standard, SAE J2513 applies to Quick Hitch specifications similar to what ASABE does in 3-point hitch standards. The horsepower of Yard & Garden tractors is usually measured from the engine's flywheel and HP is designated Engine HP. Different manufacturers use various methods to measure engine HP on small engines. All engine HP ratings may not be equal.

29. Scholarships: Refer to the Junior Ag Mechanics Show Scholarship section in the 2026 Competitive Events Premium List.

30. Premiums: The following premium schedule will apply to all classes.

JUNIOR AGRICULTURAL MECHANICS PLACING & PREMIUMS

1 st	2 nd	3 rd	4 th
\$55	\$50	\$45	\$40

Project and Tractor Shows DIVISIONS & CLASSES

Please refer to the *Naming, Describing and Classification of Projects (NDC)* document for additional information on entering and classification of projects. NDC can be accessed on the [SALE Ag Mechanics webpage](#).

Projects that are not eligible – see Special Rule 13 – will not be allowed to unload at Barn.

Classes with less than 5 projects may be combined with other classes.

PROJECT SHOW

Division 1 Field Machinery & Equipment

Class 101	Hay Equipment
Class 102	Spraying Equipment
Class 103	Tractor/Skid Steer Attachments & Equipment
Class 104	Truck & Equipment Accessories
Division Champion	
Reserve Division Champion	

Division 2 Shop Equipment & Resource Recovery

Class 201	Basic Shop Tables & Benches
Class 202	Specialized Tables & Work Stations
Class 203	Resource Recovery
Class 204	Other Shop Equipment
Division Champion	
Reserve Division Champion	

Division 3 Towable Cooking Equipment

Class 301	Small Towable Cooking Equipment
Class 302	Large Towable Cooking Equipment
Division Champion	
Reserve Division Champion	

Division 4 Non-Towable Cooking Equipment

Class 401	Non-Towable BBQ pits and smokers (Barrel BBQ pits not allowed)
Class 402	Fire Pits
Class 403	Fish Fryers and , Disc cookers
Class 404	Other Cooking Devices
Division Champion	
Reserve Division Champion	

Division 5 Yard and Garden Equipment

Class 501	Patio or Yard Tables, Benches <i>All-wood tables will not be allowed to show.</i>
Class 502	Outdoor Yard and Garden Equipment
Class 503	Small Buildings and Gazebos
Division Champion	
Reserve Division Champion	

Division 6 Livestock Handling Equipment

Class 601	Gates
Class 602	Livestock Panels
Class 603	Squeeze Chutes & Restraining Equipment
Class 604	Trim Chutes, Stands, & Crates
Division Champion	
Reserve Division Champion	

Division 7 Livestock & Game Equipment

Class 701	Livestock Feeders & Troughs
Class 702	Wildlife (Includes Wildlife Feeders)
Class 703	Other Livestock Equipment (<i>including Cattle Guards, Walkers, Chicken Coops, and Hutches</i>)
Division Champion	
Reserve Division Champion	

Division 8 Small Bumper Pull Trailers

Class 801	Utility – 12 ft. and under
Class 802	Utility – Over 12 ft. to 16 ft.
Division Champion	
Reserve Division Champion	

Division 9 Over 16 ft. & Other Bumper Pull Trailers

Class 901	Utility – Over 16 ft.
Class 902	Stock – all lengths
Class 903	Welding – <i>all lengths (Bumper Pull)</i>
Class 904	Other Bumper Pull
Division Champion	
Reserve Division Champion	

Division 10 Gooseneck Trailers

Class 1001	Lowboy – (<i>bed between wheels</i>)
Class 1002	Flatbed/Float – (<i>bed over wheels</i>)
Division Champion	
Reserve Division Champion	

Division 11 Special Gooseneck Trailers

Class 1101	Stock Trailer – <i>all lengths</i>
Class 1102	Multi-bale
Class 1103	Other Trailers and Semi Pulled Trailers
Division Champions	
Reserve Division Champions	

**Grand Champion Project
Reserve Champion Project**

No Division 12 & 13**TRACTOR SHOW**

The same tractor cannot be exhibited in more than one class.

Division 14 Early Model Tractors - Restoration

Class 1401	Tractors 1950 and older
Class 1402	Tractors 1951 – 1960
Class 1403	Tractors 1961 to Present

Division Champion
Reserve Division Champion

Division 15 Later Model Tractors - Restoration and Reconditioning

Class 1501	Tractors 1961 – Present (<u>Repair & Reconditioning</u>)
Class 1502	Tractors, Skid Steers, Backhoes, Compact Construction Equipment (CCE) 1961 – Present (<u>Repair & Reconditioning</u>)
Class 1503	Yard and Garden Tractors 1961 – Present (<u>Repair & Reconditioning</u>)

Division Champion
Reserve Division Champion

Grand Champion Tractor

Reserve Grand Champion Tractor