

JUNIOR AGRICULTURAL MECHANICS

ENTRY DEADLINE: DECEMBER 1, 2021

Superintendent: Dr. Lon R. Shell

Assistant Superintendent: Mr. Pat Real, Dr. P. Ryan Saucier

Friday, February 25

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 (Special Rule 24-C) at this time.

Exhibitors will be asked to drive tractors prior to entering the barn. If time permits, Documentation (Special Rule 24-E) and Knowledge (Special Rule 24-F) will be conducted Friday afternoon. The remaining criteria will be evaluated Saturday.

Saturday, February 26

Judge: Division 1 - 11 8 AM MAC & SB

Sunday, February 27

Results & Awards: 9 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.

All documents and examples can be found on our website at:

<https://www.sarodeo.com/p/competitive-events/ag-mechanics>

SPECIAL RULES

- Entry Fee:** The entry fee for each project is \$75.00. 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 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.
- Eligible Entries:** Contestants must meet all San Antonio Stock Show & Rodeo Junior Show Rule Requirements.
- 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 project. Gates and Panels will require only length and height. Trailer length should include tongue.**
- 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 3 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 entered exhibitors may be present at the project when judging.
8. **Project Sales:** Junior Ag Mechanics Projects cannot be sold or advertised as for sale during the Junior Ag Mechanics Show.
9. **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.
10. **Project Substitutions:** Same as Project/Animal Substitution outlined in General Rule #10.
11. **Exhibitor Substitutions:** Substitution may be made under one of the conditions outlined in Junior Rule #14.
12. **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, 2022, for no charge. Additions submitted from January 16 until the end of Check-In will be subject to an additional entry fee (\$75). Exhibitors may be removed from a project by submitting an *Add/Remove Exhibitor Form* by the end of Check-In for no charge.
13. **Types of Projects:** Only those projects that fit into the stated classes will be accepted. Final project classification will be at the discretion of Classification Committee. Leather goods, spurs, knives, canoes, teepees, boats and glass top tables/benches are not approved projects. Projects made of all wood are not allowed. 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 wood project will not be considered a part of the 25%. Please read the *Naming, Describing and Classification of Projects (NDC)* for additional description of classification and approved projects. The list of unacceptable projects above is not complete. JAM allows only projects that require the skills and knowledges identified in the Agricultural Mechanics Curriculum – TEKS 130.2 (14) that fit into classes referenced in the NDC document. Those projects that are not acceptable will not be allowed in the East Gate to be placed in barn
14. **Vehicles:** Trucks, tractors, trailers or other vehicles that are not entered to be exhibited are allowed in the exhibit area as part of the display with permission of Superintendents only.
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 is considered part of the project. *Refer to Special Rule 18 - Documentation & Research* found below.
16. **Project Presentation:** Criteria to be considered for Showmanship:
 - a. **Neatness of project** – Clean and free of dust and debris.
 - b. **Neatness of surroundings** – Includes floor under and around the project.
 - c. **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.
 - d. **Signs** – All projects are to be identified with the official exhibitor card. Other signs, banners, etc. are subject to approval by Superintendent. "For Sale" signs are **not** permitted.
 - e. **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 when they arrive at show grounds.
 - f. **Logos** – Do not use company logos on projects unless provided a limited use agreement.
 - g. **Inappropriate Silhouettes** – Inappropriate silhouettes or cutouts should not be used on projects.
 - h. **Safety** – All safety procedures must be adhered to when displaying projects. Oxygen and fuel cylinders, acetylene or propane are not allowed.
 - i. **Clutter** – Exhibitors should confine paraphernalia, chairs, show boxes, cleaning supplies, brooms, and wiping rags to their assigned display area.
 - j. **Painting/Scratches** – Paint is not allowed in the display area. Judges will be instructed to make allowances for scratches or damage due to transportation.

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 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 project.
- e. **Naming Project** – Proper project name and classification will be reflected on the Exhibitor Card. See *Naming, Describing & Classification of Projects (NDC)*.

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.

18. 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 *Documentation Check Sheet*. Documentation for Tractor Restoration is explained below, Rule 27C.

Documentation & Research Package must include the following 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. Scale must be identified on the drawing. Dimensioning shown on drawing should be specific and complete enough for it to be apparent that drawing was used to plan and construct 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. Examples of proper drawing including scaling can be found in Presentations Project PDF and *Documentation & Research Package Template* found [here](#).
- 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. Vendors name and/or Purchase Order Number, etc. may be included. Invoices or Sales Receipts are recommended to be included with the BOM. BOM may be developed using computer spread sheet program. Examples of BOM can be found in the *Documentation & Research Package Template*.
- 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, or Reconditioning Classes. Two, but no more than four pictures per page is recommended. Additional photographs may be displayed in a separate notebook for public viewing, or may be displayed using 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 latest appropriate ASABE Standards - Special Rule 21. Instructions for addressing the ASABE standards are found on website.
 - 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.

19. 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 25% of the fuel tank capacity is allowed in any fuel tank. The fuel tank cap must be in place. All batteries, except tractors must be disconnected. See Tractor Safety below.

20. 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 Title 7, Vehicles and Traffic Transportation Code of the Texas Statutes. 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*. Trailer must be grounded to 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) placed on tongue. SN or VIN 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 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 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 edge of fender does not cut tire.
- h. Any trailer that is over wide (102 inches) must have a signed overwide permit. Permit to include dates week prior to and week after show. Trailer widths will be measured at the widest point on the trailer. Review *Trailer Statutes* document and the *Trailer Construction Guide* for major codes and rules. It is the exhibitors' responsibility to have reviewed and understand all TxDOT and Federal Codes.

Any trailer that is over width without permit will be discounted 10 points.

21. 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 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 question or need additional help, please email Lon R. Shell at tractor@lonshell.com or Patrick Real at realfarm@swbell.net.

1. **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 the ASABE to find and download a PDF file - enter Document number ASABE/ISO 500 or title of Standard.
2. **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.

3. Copies of the most recent ASABE standards must be included in Research Section of documentation for those projects that apply. There are related standards – these related standards are optional for including in research documentation.
22. **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.
23. **Projects Needing Offloading 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 organized so the tractor can be off loaded 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. Rules for offloading and loading tractors are provided below in Tractor Show Special Rules #25.
24. **Project Show Judging Criteria – *excluding Tractors***

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 Category	Points
Blue	90 - 100
Red	80 - 89
White	79 or less

Note: Ribbon Categories are used in both Project Show and Tractor Show. Only Blue-Ribbon projects are eligible for placing

Showmanship Award – Criteria is identified on Showmanship Score Card on website. Criteria is similar for both Project and Tractor Shows.

TRACTOR SHOW**25. Tractor Restoration and Reconditioning Classes**

- a. Tractor Exhibitor Cards should be on tractors when they are unloaded Friday morning at show grounds.
- b. No yard tractors or riding lawnmowers.
- c. Tractor Serial Number must be included with the Description on Entry Form and Exhibitor Card.
- d. Fuel tanks must not be more than 25% full.
- e. Fuel Shut Off valves, under fuel tanks, must be functional and fuel valves closed when exhibiting.
- f. A fully approved ABC fire extinguisher with a minimum of 5 lb. capacity must be placed next to tractor.
- g. All lugged tractors must be equipped with road bands. Road bands can be shop built.
- h. All Crawlers must be equipped with rubber lugs or exhibitor must provide rubber belts/mats. Belts may be conveyor or baler belts.
- i. Tractors may be started and driven only at the request of show officials.
- j. Unloading and Loading will be under direction of show officials.
- k. Tractor Documentation & Research package must be submitted for inspection Friday. No changes to package are allowed after they are submitted. Exhibitor must insert worksheets given them Friday in notebook for judges to access Saturday. Worksheets may not be altered.
- l. Exhibitors must provide with each tractor, tools including flash light necessary to check fluid levels. Also, cloth or paper wipes and step ladder for large tractors for judges to check fuel and fluid levels. Tire pressure will also be checked.
- m. Display area: Table or bench size should not exceed 3 ft. by 6 ft. (Should not be so large it blocks access to tractor and other tractors. If tool box is used it should be sized to fit under the table. Tool Box may serve as the table.
- n. Electrical outlets are not guaranteed.
- o. Caution Tape is not necessary. Do not use tape to prevent access to tractor. Signs may be used to request public to keep off tractor.
- p. Drip pans with absorbent are required at night only. They are not to be used during the day when tractors are being judged.
- q. Additional instructions and safety issues are addressed below.

26. DIVISION 14 – Restoration Classes 1401, 1402, & 1501 – Judging Criteria

Criteria	Points
a. Mechanical - Restoration	40
b. Knowledge & Presentation	20
c. Documentation & Research	15
d. Safety	10
e. Aesthetics	10
f. Authenticity	5
Total	100
Complexity Factor (CF) Bonus Pts	15

27. DIVISION 15 – Reconditioning Class, 1502 – Judging Criteria

Criteria	Points
a. Mechanical - Repair & Maintenance	30
b. Knowledge & Presentation	20
c. Documentation & Research	15
d. Safety	10
e. Aesthetics	10
f. Diagnosis	15
Total	100
Complexity Factor (CF) Bonus Pts	15

a. Mechanical**i. All tractor classes**

- As part of the mechanical evaluations exhibitors will be asked to start and drive 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*– on the website 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. Also sandblasting can warp or distort sheet metal parts and will impact aesthetics. Sand remaining from sandblasting can result in major damage to tractor. Evidence of sand will result in deducting points in Mechanical.

ii. Restoration Classes 1401, 1402, & 1501

- 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.

iii. Reconditioning Class 1502

- Will include only those systems or components that need major repairing or reconditioning. (Those systems that were repaired or maintained should be identified in the Table of Contents see below.) Exchanging parts, for example removing a diesel pump and taking to town to put on pump stand is not considered a major repair. It should be identified under Engine in reports but must entail proof of diagnosis in determining pump malfunction to be awarded diagnostic points. Mechanical is

worth 30 points in class 1502. Diagnostics is an important part of analyzing the mechanical components. Diagnostic points are awarded in its own Category.

- Will include maintenance items. This may be an extensive list such as maintenance required for warranty. Examples of maintenance could include – cooling, fluids, hoses, belts clutch adjustments, air conditioning and tappet adjustments. Some maintenance items may require checking codes on tractor display which may require a special computer to help diagnose error codes. These will require the cooperation of the dealer. Diagnostic skills performed in the performance of major mechanical and maintenance will be awarded points in the Diagnosis criteria, see below.

b. Knowledge & Presentation: (All tractor classes)

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

c. Documentation and Research: (All Tractor Classes)

- 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 and 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.
- Tractor 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 and asking questions over materials they are evaluating.
- See *Tractor Restoration Documentation Template (PDF)* on the website. This template was prepared in 2016 and requires slight modifications for up to date documentation specifications.
- Also *Documentation, Knowledge & Presentation Reference Sheet 2* on the website has more specific information. This document also needs modified slightly. See revision for Class 1502 Reconditioning class below. All judges critique sheets are on the website.
- All documentation should be arranged in a three ring binder, using sequenced labeled dividers with a corresponding table of contents. *Suggested Table of Contents shown below will differ slightly between Restoration and Reconditioning classes.*
- Tractor documentation will be submitted at unloading. Documentation may not be altered after it is submitted.

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

I.	Tractor History – Previous Owners – where obtained, etc. (Max 1 page) Could include Picture of tractor as you found it.
II.	Restoration or Reconditioning – Mechanics Summary Report including Complexity Factors – CF (Max 1 page) Could include Picture of Completed Tractor.
III.	<p>Expense Reports – show in spreadsheet format. Similar to BOM in project show.</p> <p>a. Parts – Costs of all parts and supplies – invoices included with dates. Show Total Expense including Sub Totals of OC and PE</p> <p>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.</p> <p>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 pump stand – diagnose and repair it. You are encouraged to be present when the technician is evaluating and/or repairing part so you can learn from this. Have picture taken of you with Professional mechanic to be included in your photos. Professional 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>
IV.	<p>Photos – (order of presentation - disassembly – evaluation – repair) All Photos should have a title or description along with identifying names of exhibitors performing the task in the picture. Teacher (AST) or CVEA and others helping you should be in a few of the pictures and identified. Most pictures should be technical in nature – using precision tools – micrometers, torque wrenches, small hole and telescoping gauges, adjusting tappets or clutch, timing engine, diagnosing hydraulic system with pressure gauges, etc. Most exhibitors use two or three paragraphs to explain what they are doing in the pictures in different sections. See example <i>Template</i>.</p> <p>a. No more than 120 pictures with 2 pictures per page. Cover sheets not required on picture pages.</p> <p>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.</p> <p>c. Photos shown by sections. Sequence may be different from that depicted below. (Recondition Class will only have pictures in sections – components they diagnosed and repaired.)</p> <ul style="list-style-type: none"> i. Engine ii. Clutch iii. Transmission iv. Final Drive Train – Transmission & Final Drive could be combined in a Power Train Section v. Ancillary & External components could include steering, operator comfort, controls, fuel, air filter, turbo, electrical, cooling hydraulics, brakes, etc. vi. Sheet Metal and finishing – Reconditioning class should include Aesthetic items here also. For example, was a cab kit installed? vii. Rims and Tires viii. Eye Appeal item – Decals, Trim, other – Appearance Section could include: vi, vii and viii
V.	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.

VI.	<p><u>Recondition Class only</u> – <i>Equipment Check-in Sheet</i> and <i>Service Preliminary Sheet</i>. These sheets are forms tractor dealers use when tractor or machine brought to them by farmers for repair. It is suggested that you use the local dealers' forms/sheets.</p> <p>a. <i>Equipment Check-In sheet</i>. Customers helps the dealer fill this form out when customer brings in equipment or tractor to be repaired. It includes all the information regarding 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 machine was brought in.</p> <p>b. <i>Service Preliminary Form</i>. Technician fills out this form after he has inspected the machine and list all items that are needed to repair or fix problem. Form is presented to customer for him to sign authorizing necessary parts and repairs prior to repair.</p>
VII.	<p>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.</p>

- d. Safety:** Safety is measured in a number of ways. See *Aesthetics, Authenticity & Safety Reference 3* on website. All equipment that was original to the tractor should be in place (includes 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 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 the tractor. Specific rules and regulations related to the driving, unloading and loading the tractor are posted on the website. These will be strictly adhered to and safety points deducted for infractions.
 - iii.** Basic rules for driving, unloading and loading tractors.
 - 1) Tractors are unloaded and loaded only under the direction of show officials. No tractor will be offloaded without supervision of show official.
 - 2) Tractor driver must have experience in driving and loading tractor on trailer hauling it to show. This driver must have the approval of the AST or CVEA. Leader certifies that driver meets these criteria. Diver unloading and loading the tractor may or may not be the exhibitor but safety point deductions will be attributed to that tractor based on the procedures used in offloading and loading.
 - 3) Tire pressure and tire coating will be inspected along with controls, including brakes, throttle and clutch prior to offloading. Tires should not have more than recommended tire pressure.
 - 4) All ramps must be fastened to trailer and designed with proper surface to provide traction. This is especially important in wet weather. Trailer must be equipped with middle ramp if hauling tricycle tractor.
 - 5) It is the responsibility of the driver to make sure that at least 10 ft. of area around the trailer is clear. Only approved personal may be in this area.
 - 6) Truck driver must off load any projects that on the back of the trailer hauling the tractor at the barn where directed. Fork Lifts and other machinery will not come into the tractor unloading area.
- e. 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.** Metal preparation prior to painting or waxing.
 - ii.** Painting a tractor in the Reconditioning class is optional. Detailing tractor is required even if tractor is not painted.

- iii. Reconditioned tractors that are not painted must have been pressure washed including engine compartment. Those that are not painted may be waxed.
 - iv. Painting and finish in Restored Tractors. Clear coating is not recommended. Paint color should be original. See *Aesthetics, Authenticity & Safety Reference 3* on the website.
 - v. Detail and completeness of components – cabs, steering wheels, seats, controls and gages, wiring harness, hoses and belts, etc.
- f. **Authenticity:** (Restoration Tractor classes only) Must be as original as possible. See *Aesthetics, Authenticity & Safety Reference 3* on the website. Items included: Authenticity is not considered in the Repair and Reconditioning Class 1502.
- i. Paint color, fasteners, and other components such as magnetos, carburetors, exhaust systems
 - ii. Mechanical systems – fuel, electrical, engine, transmission, final drive, PTO and 3 Point hitch, cooling, etc.
 - iii. Original Serial plates in place and unaltered serial numbers.

Note: Authenticity – does not prevent updating or improving the efficiency and performance of a tractor for field work using manufactures 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 a 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 volt.

Diagnosis: (Recondition Tractor Class) Diagnosis should be documented in the explanations in Documentation & Research book especially when explaining the systems – component analyzed with the Photos. Dealer Forms identified in Documentation above require diagnosis. In later model tractors error codes are generated in the display or computer on tractor to help mechanic determine the problem. Exhibitor may have the dealer's mechanic to help him with this diagnosis in that school may not have the necessary equipment. Student should be involved in the process and should explain and document it in his documentation package. It is hoped that this will help develop a connection with the dealer and maybe eventually turn into an internship or employment. Teacher/leader should go with the student to ask the dealers cooperation. It may be that the dealer can help the students by providing them one of the tractors that has been brought to him for repair. The dealer performs a lot of the required warranty maintenance items on the later model tractor in addition to repair. Some of these maintenance items are technical and will require knowledge and skills to perform the required maintenance. Repair and extensive Maintenance will meet the Mechanical requirements to justify entering a tractor in the Recondition Class because in many of these diagnostic analysis will require reading and interpreting technical manuals.

- g. **Complexity Factor:** Up to 15 points may be added to reward exhibitor(s) for difficulty or sophistication of work conducted on tractor. Examples could be on 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 tractor on a PTO dynamometer could be considered as a Complexity Factor and is also a diagnostic function.

28. Additional Resources

Exhibitors and leaders are encouraged to get on the website and using a monthly code to access the ASABE technical library in order 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 the tractor 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. We also provide on the JAM website many additional technical materials to help in our educational objective. Many of these have been identified in other Sections regarding tractors.

29. Scholarships: Refer to the Junior Livestock Show Scholarship section in the 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. Projects that are not eligible – see **Special Rule 13** – will not be allowed to enter East Gate and unloaded at Barn.

Classes with less than 5 projects may be collapsed with other classes. Large classes may be divided into two or more classes.

PROJECT SHOW

Division 1 Field Machinery & Equipment

- Class 101 Hay Equipment
- Class 102 Spraying Equipment
- Class 103 Tractor 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 (trailer body 8 feet or less)
- Class 302 Large Towable Cooking Equipment (trailer body more than 8 feet)
- Division Champion
- Reserve Division Champion

Division 4 Non-Towable Cooking Equipment

- Class 401 Non-Towable Cooking Devices
- Class 402 Fire Pits
- Class 403 Fish Fryers, Disk Cookers
- Division Champion
- Reserve Division Champion

Division 5 Yard and Garden Equipment

- Class 501 Patio or Yard Tables and Benches. All wood tables will not be allowed to show.
- Class 502 Outdoor Yard & Garden Equipment
- Class 503 Green Houses, Potting Sheds, Tack or Tool Sheds, Small Buildings *including Tiny Houses*
- 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, Blocking Stands, Livestock Crates

Division Champion

Reserve Division Champion

Division 7 Livestock & Game Equipment

- Class 701 Feeders & Troughs
- Class 702 Wildlife
- Class 703 Other Livestock Equipment (including Walkers, Chicken Coops, and Hutches)

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 – all lengths (Bumper Pull)
- Class 904 Other Bumper Pull

Division Champion

Reserve Division Champion

Division 10 Gooseneck Trailers

- Class 1001 Lowboy – (bed between wheels)
- Class 1002 Flatbed/Float – (bed over wheels)

Division Champion

Reserve Division Champion

Division 11 Gooseneck - Stock, Multi-bale, 5th Wheel & Other Trailers

- Class 1101 Stock Trailer – all lengths
- 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**

Division 14 Early Model Tractors - Restoration

Class 1401 Tractors 1950 and older

Class 1402 Tractors 1951 – 1960

Division Champion

Reserve Division Champion

Division 15 Later Model Tractors - Restoration & Reconditioning

(The same tractor cannot be shown in both classes)

Class 1501 Tractors 1961 – Present ***(Restoration Required)***

Class 1502 Tractors 1961 – Present ***(Repair & Reconditioning Required)***

Division Champion

Reserve Division_Champion

Grand Champion Tractor