

# NATIONAL QUARTER SCALE PULLERS

## COMPLETE RULES THROUGH 2011

### ***GENERAL RULES:***

1.) TRACK OFFICIALS DECISION WILL BE FINAL. ANY DISAGREEMENT ON THEIR DECISION ON ANY POINT OF CONTROVERSY WILL RESULT IN DISQUALIFICATION FOR THAT CLASS FOR THE DAY. Comment: The track officials have the final say on what happens on the track. YOUR TRACTOR MUST MEET ALL SAFETY AND SHIELDING REQUIREMENTS PRIOR TO HOOKING OTHERWISE YOU WILL NOT BE ALLOWED TO COMPETE AND THERE WILL BE NO REFUND OF ENTRY.

### ***2.) Track Operations:***

A.) Driver must put his tractor in a neutral position and be hand pushed to the sled. Tractor must be shut down before chain will be unhooked from tractor. Comment: Flag men will enforce this rule for the safety of the track help. See Rule 1.

B.) No portion of the tractor shall interfere with the sled hitch during pull. Comment: Many times the starting line becomes torn up, which will cause the front of the tractor to be lower than the rear tires. This may cause an interference of the cross bar for the wheelie wheels. The intent of the rule is not to interfere once the pull is underway. See Rule 1.

C.) Any portion of tractor touching boundary line during pull will result in disqualification. Comment: This would be limited to the front or the rear tires. There is no out of bounds once the tractor passes the full pull mark. See Rule 1. The entire tractor must pass the full pull mark.

D.) Two attempts will be allowed to start sled except in pull-offs. One attempt only in a pull-off. Comment: An attempt is considered once the hook goes in the hitch and driver physically tries to start the tractor in motion by revving up the engine and attempting to release the clutch. See Rule 1.

E.) The first puller can drop five places which means he or she will actually start in the 6th position or they can come back immediately. If they do drop, they drop to the 6th position.

F.) If a puller has a mechanical problem they have to drop back 6 positions (five more pull then they hook). If there are less than five tractors remaining, they have until the end of the heat plus five (5) minutes. If they are not able to hook within the allotted time they will receive last place in that heat. THE PULLER CAN NOT DROP TO ANOTHER HEAT - it would be unfair to the others in those heats.

G.) Driver will be disqualified if he or she delays contest: Comment: A puller is expected to have their tractor running by the time the sled gets back to the starting point, If the puller delays more than 90 seconds he will have to drop as discussed in Rule 2-F.

H.) Pulling position will be determined by drawing. Comment: The drawing should be done prior to the event for the heats. Pullers (individuals, siblings and spouses) with more than one tractor in a class will be put in separate heats. It is recommended late entries the day of the pull will be staggered throughout the line up and heats.

I.) Driver must remain seated during pull. Drivers must have at least one hand on the steering wheel at all times.

J.) Weight transfer sled will be used. Comment: Either self-propelled or pull back. Must be a 3' chain

K.) Tractors must be operated in a safe manner at all times

L.) All weights must be safely secured to the tractor. Any excessive or obvious loss of weights or components may cause for disqualification. Comment: The flagman must make the call during the pull. Any disqualification for loss of weight or component must be made during the pull. A pull is started when the sled starts to move and is ended when the sled stops movement, even though the tractor may still be under power.

M.) Track officials have the right to restart the class anytime within the first seven (7), either for full pulls or short tracking.

**3.) SAFETY: YOUR TRACTOR MUST MEET ALL SAFETY AND SHIELDING REQUIREMENTS PRIOR TO HOOKING OTHERWISE YOU WILL NOT BE ALLOWED TO COMPETE AND THERE WILL BE NO REFUND OF ENTRY.**

A.) HELMETS AND FIRESUITS ARE MANDATORY IN ALL CLASSES, MUST BE ZIPPED AND SECURED. FIRE SUITS must be a minimum requirement of SFI 3.2A/1. Helmets must be a minimum requirement of Snell 95.

B.) All tractors are required to have a switch that will kill engine and fuel pump in case of chain or hitch breakage. The switch will be located within range of six (6") either side of center of back of tractor with a minimum of a 1.5" circle. Comment: Make sure it has an adequate size ring in order to ease connecting to sled.

C.) All tractors must be equipped with a dead man throttle.

D.) A minimum one (1) pound dry chemical fire extinguisher or equivalent. Comment: A gauge on the fire extinguisher is required. They can either be dry chemical or CO<sub>2</sub>-type extinguisher. The fire extinguisher must be full.

E.) All exhaust must discharge vertically and be securely attached. No more than 10 degrees out of straight upward allowed.

F.) All tractors must have safety device to prevent turnovers. This device is to have wheels or skid plates. Wheels are to be at least 1" wide and 5" in diameter. Skid plates to have at least 3 square inches at ground contact point. Wheels or skid plates must be no less than 5" behind the rear tires and not more than 5" above the ground. This device must be able to support the weight of the tractor. Comment: the tolerance on height is + 1/4" (5 1/4") and behind tires - 1/4" (4 3/4")

G.) ALL engines must have a scatter shield opposite the cam side of the motor, it must be of 1/8" steel or 3/16" aluminum. It must cover full height and width of block and be attached in a secure manner to frame and head or head plate. See Section 11-B for V-Twin Shielding.

H.) All drivers should be clean and neatly attired. Tractors should be clean and painted. Drivers under 18 years of age must have signed parental consent on file.

I.) Obvious or excessive consumption of alcoholic beverages or drugs will be grounds for disqualification.

J.) All final drive belts must be covered top 180 degrees and all flywheel and clutch assemblies must be covered 360 degrees with 1/8" steel or 3/16" aluminum and be securely fastened to the frame or engine.

K.) Engine Dampers must meet requirements of SFI Spec 18.1 is required. A bolt is required to secure damper to crank. FLYWHEELS and STARTER PULLEYS must be of billet steel or aluminum (no cast or stamped steel pulleys). No welded on fins. All starter pulleys must have a retaining device to prevent pulley from coming off crankshaft.

L.) All tractors to be equipped with workable brakes.

M.) Fenders: Fenders must extend a minimum of 4" in width and must cover the front of tire to its furthest point forward. It is recommended that the foot step be connected to front of fender to avoid your foot being pulled in by the tire.

N.) NQS Tech official reserve the right to implement rule changes for safety and health reasons at any time.

#### **4.) Chassis:**

A.) Open to two-wheel drive, rubber tired tractors, no dual wheels, chains or spikes. TIRES MUST BE NO LARGER THAN 26X12X12 FOR ALL TRACTORS.

B.) All tractors must have at least a 3" seat back on all seats. Seat back must be rigid enough not to flex down excessively when leaned upon. 45 degree angle max

C.) Drawbar will be horizontal and stationary in all directions. With hitching device not more than 3/4" in thickness and must have a 1 1/2" width/depth for hook. Pulling point may not be more than 3/4" from back edge of hitching device parallel to and not more than 13" above the ground. Comment: Pulling hitch should be made of steel.

D.) No portion of any tractor may exceed 6 feet in width. No portion of any tractor (except stock altered) may exceed 8 feet forward of the center of the rear wheel, including weights. **Stock Altered is 7 feet forward of the center of the rear wheel.** Comment: No tolerance on the overall length.

E.) All tractors in all classes are to run Methanol, with no additives (except for diesel fueled tractors). There are two U.S. Federal Grades. Grade A and AA. Either grade is permitted to use. Pullers should ensure that the methanol they purchase meets federal standards of purity. Methanol is tested at all NQS events by various chemical analysis as considered appropriate

by the NQS Fuel Tech personnel. Deviation from the standards listed below in the fuel sample will result in disqualification. Methanol is a hygroscopic substance and readily absorbs moisture from the air, which rapidly

renders methanol illegal as a fuel for use in NQS pulling. Pullers are cautioned to keep methanol containers tightly sealed at all times to minimize the absorption of water.

**Specification for Pure Methanol:**

	Grade A	Grade AA
Methanol Content, wt %, min.	99.85%	99.85%
Acetone and Aldehydes, ppm, max.	30	30
Acetone, ppm, max.	20	20
Ethanol, ppm, max.	10	
Acid (as acetic acid), ppm, max.	30	
Water content, ppm, max.	1500	1000
Specific gravity, 20°C	.7928	.7928
Permanganate time, min.	30	30
Odor	Characteristic	
Distillation range @ 101 kPa	Not more than 1°C, including 64.6 +/- 0.1°C at 760mmHg	
Color, platinum-cobalt scale, mix	5	5
Appearance	Colorless-clear	
Residual on evaporation, g/100mL	.001	.001
Carbonizable impurities; color platinum-cobalt scale, max.	30	30

**Diesel fueled tractors** must run diesel only with a dielectric value of no greater than 4.9 or less than 2.2. The dielectric meter shall use Cyclohexane to establish the zero reference point in determining all diesel fuel dielectric constant values. The use of additives containing oxygen, such as nitromethane, propylene oxide, dioaxane, MTBE, alcohol (methanol), or nitrous oxide is prohibited. These additives, and others of the oxygen-bearing family, will significantly change the dielectric values of diesel fuel.

F.) Electronic Fuel Injection NOT allowed in any classes.

G.) No pressurized fuel tanks, No Nitrous Oxide.

H.) No weights to extend beyond rear tires.

I.) No reverse port engines in either Pro Stock or Stock Altered Classes.

### **5.) Tear down and Illegal Vehicles:**

A.) All top money winners will have their engines checked for legality. Teching will include, but not limited to the engine. Remember, if you don't want the NQS tech official to see parts of your engine that is not involved with the tear down process, cover it up. Any person who refuses to be inspected for eligibility by routine check of money winners shall not be allowed to enter and/or pull in the class in question until legality is checked. See Rule #1.

B.) Tractors that fail the engine tear down will be removed from the NQS Points Championship. You will be able to compete at the events after your vehicle is checked for legality after the infraction occurred and the disqualification is only for the remainder of the season. Overweight, over length, hitch height infraction, failing the fuel test or the carb check will result in no points for that class for that day. Out-of-bounds will result in last place points for that heat for that class.

C.) Illegal Parts. The NQS reserves the right that they may confiscate illegal parts and display them at the events and on the NQS web site ([www.nqspulling.com](http://www.nqspulling.com)).

D.) Propylene Oxide is prohibited in all classes.

E.) NQS Tech Officials can overrule any misprints in these rules.

### **6.) PRO STOCK RULES**

#### **1050 LBS 50.5 CUBIC INCH LIMIT**

A.) Single cylinder Pro-Stock is defined as having a one cylinder, air cooled four cycle flat head, two valves same side, commercially produced manufactured cast block engine. Sleeves and welding permitted. Commercially produced manufactured cast block means made by Kohler, Wisconsin, Briggs, Tecumseh and etc. If copy is being made, copied block must meet basic manufactures spec's for that engine being copied. Crank and cam location, deck height, two valves same side, valve angle (maximum valve angle of 6 degrees), intake and exhaust port location and factory head gasket bolt pattern.

B.) A stock appearing Kohler type carburetor must be used if other than stock for the model engine being used. Stand off pipe or ram tubes are permitted. Choke may be removed. Single carburetor only. Air restricting venturi must be in stock position and carburetor not to be larger diameter than 1.200". Air controlled by butterfly in stock position in carburetor, no slides, no injection, naturally aspirated only. No air entering after 1.200" restriction. Venturi must be round in shape.

C.) Methanol only. See Rule 4-E

D.) All tractors must have hood and grill.

E.) Wheelbase 56 inches maximum.

F.) Top placing tractors will be checked for, but not limited to: Fuel, Deck Height, Carburetor, Cubic Inch and Factory Head Gasket Bolt Pattern. CU. IN.: 50.500 Cu. In. zero tolerance. Formula for CU. IN. is Measured bore x measured bore x measured stroke x .785 = Cu. In. All bores measured 90 degrees from thrust side. Stock Head bolt pattern =>stock head gasket must fit over studs or bolts.

## **7.) SUPER STOCK RULES**

### **1050 LBS 50.5 CUBIC INCH LIMIT**

### **30 CUBIC INCH RULES 950 LBS**

A.) Single cylinder Super Stock is defined as any tractor having one cylinder, air cooled four cycle, flat head, two valves same side of engine.

B.) Any type of Naturally Aspirated induction is permitted.

C.) Methanol only. See Rule 4-E

D.) All tractors must have hood and grill.

E.) Wheelbase 56 inches maximum.

F.) Top placing tractors will be checked for, but not limited to: Fuel and Cubic Inch Limit. CU. IN.: 50.500 Cu. In. zero tolerance and 30.000 Cu. In. zero tolerance. Formula for CU. IN. is Measured bore x measured bore x measured stroke x .785 = Cu. In. All bores measured 90 degrees from thrust side.

G.) 16hp 60 overbore engines can run in the 30 cubic inch class at 900 lbs. and a 12" hitch height. Limits on the flathead engine is stock appearing block, maximum bore 3.830", maximum stroke 3.25" – 37.5 cubic inch maximum. and methanol fuel.. Open valve size, billet heads, port welding allowed, but no bore welding. A stock appearing Kohler type carburetor must be used if other than stock for the model engine being used. Stand off pipe or ram tubes are permitted. Choke may be removed. Single carburetor only. Air restricting venturi must be in stock position and carburetor not to be larger diameter than 1.200". Air controlled by butterfly in stock position in carburetor, no slides, no injection, naturally aspirated only. No air entering after 1.200" restriction. Venturi must be round in shape. These tractors can also run in the Outlaw class as the same set up stated above.

## **8.) STOCK ALTERED RULES**

A.) Single cylinder four cycle flathead engines only.

B.) Engines must be Kohler, Wisconsin, Tecumseh or Briggs.

C.) Engine blocks must have an OEM stock appearance.

D.) Engines must be factory productions or their OEM replacement with factory deck height.

E.) Stock Head bolt pattern =>stock head gasket must fit over studs or bolts.

F.) Stock Head bolt location and head bolt size.

G.) Maximum crankshaft stroke 3.25"

H.) Maximum engine bore 3.780"

- I.) 36.5000 cubic inch limit
- J.) Maximum engine valve size 1.380"
- K.) Maximum engine valve lift .330"
- L.) Maximum carburetor venturi size 1.00", no air entering after 1.00" restriction, venturi must be round in shape.
- M.) Carburetor must be mounted to the engine with no more than 1" spacer
- N.) No reverse port engines allowed, carburetor must go to the original intake port.
- O.) Carburetor must be a stock appearing Kohler-type
- P.) Billet heads permitted
- Q.) Porting and polishing allowed
- R.) No external welding or external modifications allowed
- S.) All thread through finned area is acceptable
- T.) Welding permitted in crankcase area of the block for repair.
- U.) Methanol only. See Rule 4-E
- V.) Must run a factory appearing hood and grill.
- W.) Tractors must have garden tractor rear-ends.
- X.) Tractors must use stock garden tractor frames.
- Y.) Frames must maintain factory length.
- Z.) Weight Class 1050 lbs.
- AA.) Wheelbase: 52 inches maximum
- BB.) Top placing tractors will be checked for, but not limited to: Fuel, Bore, Stroke, Carb Size, Valve Lift & Valve Size and deck height. Cubic Inch: 36.500 Cu. In. No Tolerance. Formula for CU. IN. is Measured bore x measured bore x measured stroke x .785 = Cu. In. All bores measured 90 degrees from thrust side.  
Stroke: 3.250" maximum 0.010" measuring tolerance, must not exceed Cu. In. Limit.  
Bore: 3.780" maximum 0.010" measuring tolerance, must not exceed Cu. In. Limit.  
Carb: 1.000" venturi size maximum 0.001" measuring tolerance.

Valve Lift: .330" maximum 0.003" measuring tolerance  
Valve Size: 1.380" maximum 0.001" measuring tolerance  
Head Bolt Pattern: Stock Gasket must fit over head studs or bolts.

## **9.) OUTLAW CLASS**

A.) 30 cubic rules apply with the following exception. Only Nitro methane will be accepted for Nitro, no other types allowed. No pressurized fuel tanks, No Nitrous Oxide.

B.) Nitro 30 cubic Inch engines have a maximum venturi size 1.200" for carburetor or 1.200" throat for fuel injected engines. Methanol fueled engines can have any type of Naturally Aspirated induction. For Methanol See Rule 4-E

C.) The weight will be #950 for all 30 cubic inch tractors.

D.) NQS Stock Alters can run in this class at #1000

These rules can be changed in order to promote fairness of the types tractors at anytime during the season.

## **10.) OPEN SUPER STOCK CLASS**

A.) All General Rules and Super Stock Rules apply, except the following: Shielding: Engine shielding rules: 1/8" steel or 3/16 aluminum on external side of cylinder extending from head gasket to frame. Shield must be attached to frame at the bottom and to the flywheel shield at the top to make rigid. V-Twins: 1/8" steel or 3/16 aluminum on external side of cylinder extending from head gasket to frame. Shield must be attached to frame at the bottom and to the flywheel shield at the top to make rigid.

B.) No motorcycle, aircraft, marine or automotive type engines permitted. Block may be copied, but must meet basic manufactures specifications. OHV or flat head.

C.) Maximum of two (2) cylinders. These can be in separate engines (i.e. two single cylinder engines) or 3 cylinder diesel fueled engines (see diesel rules below in 10-G).

D.) Maximum of 75 cubic inches.

E.) Any type of naturally aspirated induction is permitted. Methanol only in non-diesel engines

F.) Flat heads can run nitro.

G.) DIESEL RULES: Factory 3 Cylinder air or liquid cooled diesels (no cut down 4 cylinder engines)

1. 75 cubic inch limit
2. Water injection permitted, water or water soluble oil mixture only.
3. Stock head for engine make and model, no external welding except for repair.
4. No overhead cam engines
5. Stock OEM intake and exhaust manifold. Porting and polishing allowed – no tube manifolds.
6. Engine block model and serial numbers must be visible.
7. Stock or Component frame with stock appearing garden, compact or farm tractor sheet metal with full engine shields (side shields must be a minimum of 1/16" steel or aluminum). Tube chassis must be covered with sheet metal.
8. No billet fuel injector pumps or electronic fuel injection.
9. Limited to one (1) turbo, no size restriction
10. No intercoolers or ice boxes
11. Kill switch must shut off electric fuel pump and shut air off on compressor side of turbo.

12. Exhaust "L" of turbo must have minimum of 5/16" cross in elbow with exhaust to discharge vertically.
13. No propane or nitrous of any kind.
14. Must run 1/4" cable around oil pan over top of valve cover in between #1 and #2 cylinder in a complete circle connected with cable clamps (minimum of two clamps).
15. Steel flywheel required with flywheel inspection hole in bell housing.
16. Flywheel, front cast pulleys and clutch must be shielded 360 degrees with 1/8" steel or 3/16" aluminum. SFI approved scatter blanket also acceptable.
17. No belt driven cooling fans allowed, must be electric fans.
18. All other general rules apply.

H.) Battery Electric powered garden tractors limited to one 9" diameter or smaller motor.

H.) Weight is 1100 Lbs.

### ***11.) PRO V-Twin***

A.) All General Rules Apply:

B.) Engine shielding rules: 1/8" steel or 3/16 aluminum on external side of cylinder extending from head gasket to frame. Shield must be attached to frame at the bottom and to the flywheel shield at the top to make rigid.

C.) Maximum overall length will be 96" (same as pro/super stock)

D.) Maximum wheelbase will be 56" (same as pro/super stock)

E.) Maximum weight will be 1050 lbs.

F.) Maximum hitch height will be 13" (same as general rules)

G.) Engines: Must be a commercially available lawn and/or garden tractor engine. V-Twin engine type configuration only.

H.) Maximum engine size is 45.5 cubic inches

I.) Cylinder Head: Must be stock appearing cast head. No valve restrictions

J.) Carburetor: Limited to one (1) carburetor with one (1) venturi with one (1) throttle butterfly. Maximum venturi size will be 1.200". No air entering after the 1.200" restriction .

K.) Steel flywheel mandatory, along with the general flywheel shielding rules of 1/8 steel or 3/16 aluminum 360 degrees.

L.) Fuel: Methanol only as per the General rules

### ***12.) PRO OUTLAW***

A.) NQS Super Stock and NQS Pro V-Twin run together. NQS Super Stock runs at 1050 lbs with 13" hitch and NQS Pro V-twins run at 1000 lbs. and a 12" hitch height..

B.) These rules can be changed in order to promote fairness of the types tractors at anytime during the season.