

# Battle of the Bluegrass

## LLSS Rules - 2018

### Weight

- Tractor weight will be 6000lbs.

### Engine

- Engine crankcase, block, and cylinder head must be of same manufacturer, or factory replacement and can be used in any agricultural transmission and rear end that used that brand of engine, or through its company mergers used that brand of engine.

#### Example:

*CNH=*

*Case*

*Farmall*

*International*

*CaseIH*

*Ford*

*New Holland*

*AGCO=*

*Oliver*

*Moline*

*White*

*Massey Ferguson*

*AC*

*Deutz*

- Must be OEM engine block, no Billet steel or aluminum blocks.
- Engine must match brand of tractor.
- Rear of engine must be in stock location for make and model of rear end and transmission housing, with a maximum tolerance of a 1” adapter plate.
- A 1% tolerance will be given on cubic inch limitations to allow for normal engine wear.
- No V-8 Engines permitted.
- No Overhead cams allowed.
- The largest fuel system allowed is a “P”-pump with one plunger per

cylinder and one injector per cylinder.

- No P-Pump larger than a P7100
- No electronically controlled fuel system allowed.
- No secondary source of fuel (liquid or gas) or oxygen enhancer allowed.
- Water injection allowed with oil lubricant only, no additives allowed in injection water, and water will be subject to testing.
- Computer can only be used for data acquisition, may not be able to control engine timing, or fuel delivery.
- No traction control.
- Exhaust must be discharged vertically; no rain caps or curved pipes at outlet allowed, and exhaust pipes must be securely fastened to tractor.
- Exhaust pipes must have two 3/8" grade five bolts set within 1" at 90 degrees to each other at least one foot below opening in the exhaust.
- Harmonic balancer must be shielded with at least 1/8" metal underneath the front of the block and secured to the frame with four 3/8" bolts.
- Engines must have one 3/8" safety cable completely surrounding the block and head passing between the first and second cylinders, through the exhaust manifold port area, with a minimum of four clamps at all splices with 4-6 inches of slack.
- Diesels must have a spring-loaded closing mechanism air shutoff. To be deemed acceptable, when activated. The shutoff mechanism must prevent boost of engine. The kill switch must be mounted securely to the back of the tractor and have a 2-inch diameter ring (minimum 1/8" thick). Operator must also be able to operate from the driver seat.
- Alcohol engines must have a kill switch to disable the ignition.

- Diesel fuel system must have manual three-way dump valve installed ahead of the injection pump, to be operated by the operator from the driver seat.
- Must have “Dead Man” throttle with two return springs that automatically returns to idle when released by operator.
- No mechanical fans allowed.
- Flywheel will be made of steel or aluminum and be SFI approved, absolutely no cast iron allowed, and all clutch assemblies will be steel and SFI approved. No cast iron.

### Diesel Engine Options

- Maximum of 315 cubic inches for twin turbo charged diesel engines with Intercoolers. (Turbo(s) must be staged)
  - This engine combination can run a maximum of two (2) 3X4 smooth bore turbo(s). No MAF enhancement.
- Maximum of 360 cubic inches for twin turbo charged diesel engines and no intercooler or after cooler allowed. (Turbo(s) must be staged)
  - This engine combination can run a maximum of two (2) 3X4 smooth bore turbo(s). No MAF enhancement.
- Maximum of 410 cubic inches for single turbo charged diesel engines. Intercoolers allowed.
  - This engine combination can run a maximum of one (1) 3X4 turbo with MAF enhancement.
  - 0.200 MAF enhancement
  - No forward facing MAF.
- Maximum of 470 cubic inches for single turbo charged diesel engines. No intercoolers allowed.

- This engine combination can run a maximum of one (1) 3.4” smooth bore turbo.

OR

- A maximum of one (1) 3X4 turbo with MAF enhancement.
- 0.200 MAF enhancement
- No forward facing MAF.

### Alcohol Engine Option

- Maximum of 370 cubic inches for single turbo charged alcohol engines. No intercoolers allowed.
  - This engine combination can run a maximum of one (1) smooth bore 3X4 Turbo

### Turbo Restrictions

- All turbo compressor and exhaust wheels must protrude into the housing no less than 1/8<sup>th</sup> of an inch.
- The compressor wheel must measure no larger then 3-inch at the face of the wheel.
- 0.200 MAF enhancement is to be placed in the neck of the compressor housing in the factory location.
- Diesel engines that will be allowed to run a 3.4” smooth bore turbo, the compressor wheel must protrude into the housing 1/8<sup>th</sup> of an inch and the compressor wheel must measure no larger then 3.400” at the face of the compressor wheel.
- No superchargers allowed.

- Turbocharger(s) must be under stock hood or shrouded end to end and 360 degrees around with .060" thick metal. Turbocharger(s) must also be shrouded if under a fiberglass or plastic hood.

### **Cylinder Heads**

- Cast iron OEM cylinder heads only. No billet or re-cast cylinder heads allowed.
- Cylinder head must match the engine block.
- Valves must maintain the factory angle, lateral movement of valves ONLY. Valves must seat in the bottom of the OEM head on all 6-cylinder engines.
- Cylinder heads are limited to two (2) valves per cylinder.
- One spark plug per cylinder ONLY.
- Only one (1) plate will be permitted between the top of the block and the bottom of the cylinder head, with a maximum thickness of 1 1/8<sup>th</sup> inch.

### **Chassis**

- Maximum length 13 feet measured from center of rear axle to forward most point, excluding tow hook.
- Maximum wheelbase 114".
- OEM tractor rear end, bell housing, transmission and axle housings only will be accepted, no component tractors allowed.
- No type of front-end suspension will be allowed; swivel axle front ends will be accepted.
- Allow tractors with cast tub (belly)-type frame (ie., Oliver, Cockshutt, White) to remove complete frame from front of transmission housing. The Engine and clutch housing to remain in original location and mounted solid as intended by original manufacturer, with motor

mounts in the front and rear of the engine.

- No engine cradles.
- Once the tub is removed the rear of the engine cannot be exceed 60 inches from the center of the rear axle.
- Tractors that have removed the tub (belly)-type frame will be required to have 100lbs of non-movable weight mounted onto the belly of the tractor.
- Oliver style tractors must also run a SFI 6.2 or 6.3 bellhousing with SFI inspection sticker in place. If they continue to run the OEM bellhousing they will be required to run a 6 buckle 4.1 SFI rated blanket.
- All housings must stay in place, bolted ridged in all other chassis.
- Auxiliary transmission will be permitted.
- Skid plate must be mounted in-line with each frame rail and extend from the center of the front axle forward (on both sides) equal in strength to frame rail material. Skid must be securely mounted and braced to the chassis. Skid plate surface to be minimum of 4 inches wide and 12 inches long with a minimum 6-inch curve when measured from the front most part of rolled edge. Note: Skid plate must be able to support the weight of the front end when checked with jack. Maximum ground clearance is bottom of wheel rim not to exceed 4 inches with front tires in normal operating position.
- Tractors must have a full running frame rail from the axle housing to the front of the tractor or tie bars running from the axle housing to the frame. The tie bars must be able to support the weight of the tractor with all of the bolts from the transmission housing removed.

## **Hitches**

- All hitches will be minimum 3 ½ inches long X minimum 3 inches wide at the hook point. Vertical thickness of hitch will be maximum of 1 ½ inch minimum 1-inch cross-sectional thickness. Hitch will be no shorter than 18” measured from the center of the rear axle to the hooking point.
- Maximum hitch height 20”
- Wheelie bars independent of hitch. Must be able to lift tractor with jack under pad in heaviest class tractor participates in. Pad to be no more than 10” above ground and should be minimum length of 32” from center of axle when set at the 10” maximum height.
- If the drawbar has provisions to be made SHORTER than the legal length (18 inches from the center of the rear axel) is not acceptable as a legal drawbar.

## **Tires**

- Maximum tire size 30.5 X 32
- Minimum tire size 24.5 X 32

## **Fuel**

- Acceptable fuels are diesel fuel, alcohol and gasoline.
- No oxygen carriers or combustion accelerators will be permitted.
- No ether starting aid can be on tractor.

## **Safety**

- Complete fire suit, fireproof gloves, head sock and fire shoes are required. Must meet SFI spec 3.3c. All drivers will be required to use a SFI approved 3.3 neck collar.
- All competitors will wear a full-face helmet. Snell 2005 rating or

better.

- All tractors will have SFI approved clutch/flywheel assembly. No cast iron.
- All tractors will use a six buckle 4.1 SFI approved safety blanket.
- A safety light system is required. A white automotive quality light, minimum of 2" in diameter, must be directly mounted above or below the safety kill switch at the rear of the tractor.
- The light is to be activated by a shift lever such that it will only be illuminated when the tractor is in reverse.
- Must have at least 2 ½ lb. Fire extinguisher and be convenient to the operator.
- Roll cage is required to meet SFI 47.1 requirement. 5 point SFI harness is required.
- Side panels, firewall, and fenders are required on all tractors.
- Fenders must be constructed so that when the driver is secured in the competition position no part of the driver's body can touch the tire.