

CAT 140 SPECIFICATIONS

BASIC SPECIFICATIONS

- Y___ N___ Machine shall be designed and built by the manufacturer.
- Y___ N___ Base Machine Weight shall not be less than 37,420 lbs (16974 kg). Weight shall include: standard machine configuration, lubricants, coolants, full fuel tank and operator of 200 lbs (91 kg).
- Y___ N___ Machine length from the front outside edge tire to end of tow hitch shall not be less than 351 in (8,912 mm).
- Y___ N___ Machine Wheel Base (distance from front axle to mid tandem) shall not be less than 241 in (6123 mm).
- Y___ N___ A toolbox shall be provided.
- Y___ N___ Machine shall have vandal protection standard including locks for cab doors, engine side shields (4), top tank radiator access door, engine coolant surge tank, hydraulic reservoir cap, fuel tank cap and tool box.

ENGINE

- Y___ N___ Engine shall be designed and built by the manufacturer.
- Y___ N___ Engine shall be a turbo-charged, direct injection, four stroke, 6-cylinder diesel engine.
- Y___ N___ Engine shall be electronically controlled for more efficient fuel injection and fuel burn.
- Y___ N___ Engine shall achieve rated power requirement with engine displacement not less than 9.3L (568 in³) for better performance and fuel economy.
- Y___ N___ Engine shall develop, as standard, a rated net flywheel power of a least 179 HP (133 kW) in 1st gear, 189 HP (141 kW) in 2nd gear, 200 HP (149 kW) in 3rd gear, 210 HP (156 kW) in 4th gear, 215 HP (160 kW) in 5th gear, 220 HP (164 kW) in 6th gear, 225 HP (168 kW) in 7th gear, 231 HP (172 kW) in 8th gear.
- Y___ N___ Engine will increase its low idle speed to 1,000 rpm when the battery voltage is below 24.5 volts for more than 5 minutes to ensure adequate system voltage and battery reliability.
- Y___ N___ Peak engine power shall not be achieved at an engine speed greater than 1800 rpm.
- Y___ N___ Rated engine power shall not be achieved at an engine speed greater than 2000 rpm.
- Y___ N___ Engine will have an minimum torque rise of 47% from 2000 rpm to peak torque following SAE J1349 (net power with max fan).
- Y___ N___ Engine enclosure and daily service points shall be accessible from ground level and grouped on the left side of the machine.
- Y___ N___ Engine fan shall automatically adjust fan speed via a variable hydraulic fan pump to meet engine cooling requirements thus reducing demand on the engine, putting more horsepower to the ground, reducing noise, improving fuel economy, and reducing heat.
- Y___ N___ Engine shall allow for at least 1000 hours of operation between oil changes. (with SOS sampling)
- Y___ N___ Engine shall be isolation/resilient mounted to minimize sound and vibration.
- Y___ N___ Engine compartment doors shall be lockable without the use of external locks.
- Y___ N___ Engine shall automatically lower engine torque and alert the operator if critical conditions are detected.
- Y___ N___ Engine shall have an air-to-air after cooler for superior engine performance.
- Y___ N___ Machine shall have a 12000 hour coolant interval from factory.
- Y___ N___ The charged air cooler (ATAAC) shall have 6 fins per inch.
- Y___ N___ Economy mode shall be able to be enabled and disabled by the operator through the onboard Message Display.

POWERTRAIN/TRANSMISSION

- Y___ N___ Transmission shall be designed and built by the machine manufacturer.
- Y___ N___ Transmission shall be a direct drive, power shift, countershaft type.
- Y___ N___ Transmission shall be equipped with built-in self-diagnostic capability.
- Y___ N___ Transmission shall have no less than 8 forward speeds and 6 reverse speeds(for added safety).
- Y___ N___ Transmission shall have 5 working gears between 0-10.6 mph (0-17.1 km/h), for dirt applications.
- Y___ N___ Transmission shall be isolated/resilient mounted to reduce sound and vibration.
- Y___ N___ A controlled throttle shifting system shall be standard to smooth directional gear changes without use of the inching pedal.
- Y___ N___ Electronic Throttle Control (cruise control) shall be standard and shall be controlled by a push button.
- Y___ N___ A load compensating system for the transmission shall be standard to ensure consistent shift quality in all applications.

- Y___ N___ Automatic Differential Lock/Unlock feature shall be standard and shall not have speed, shuttle shifting or tandem spinning restrictions for engaging/disengaging. System must be load-sensing for optimal performance. .
- Y___ N___ Automatic mode shall not be overridden via manual intervention for optimal performance and to prevent unintended differential engagement
- Y___ N___ Differential Lock/Unlock shall be electro-hydraulically controlled, as a standard feature.
- Y___ N___ The rear axle shall be a bolt-on modular design offering easy access to differential components, improving serviceability and contamination control.

- Y___ N___ The total surface area of all the transmission clutch packs shall not be less than 1831 in² (11,812cm²).
- Y___ N___ Diameter at the output end of the transmission shaft shall be no less than 2.29 in (58.1 mm).
- Y___ N___ Machine shall be equipped with an electronic inching pedal for improved modulation and machine control.
- Y___ N___ Machine shall be equipped with electronic over-speed protection to prevent the engine and transmission from over speeding, as a standard feature.

STEERING & IMPLEMENT CONTROLS

- Y___ N___ Steering wheel shall not be required to operate machine.
- Y___ N___ Joystick Steering capabilities shall be ISO5010.
- Y___ N___ Primary steering shall be achieved via a left hand, multifunction, 3- axis, joystick as standard, using an intuitive steering control system that automatically adjusts steering sensitivity as machine ground speed increases.
- Y___ N___ Articulation to the right or left shall be achieved by a multifunction, 3-axis left joystick with the twist of such to the right or left by the left-hand, multifunction, 3-axis joystick.
- Y___ N___ An articulation return-to-center button on the left multifunction, 3- axis, joystick, shall return the machine to a straight frame position from any articulation angle with the touch of a single button.
- Y___ N___ The right 3 axis joystick shall primarily control the Drawbar, Circle, and Moldboard.
- Y___ N___ Joystick controls shall be mounted to adjustable pedestals, hard mounted to the cab floor, independent of the operator seat.
- Y___ N___ Secondary steering shall have a primary and secondary power supply in the event the primary source is lost.
- Y___ N___ Manual Differential Lock/Unlock shall be operator controlled, via a push-button.
- Y___ N___ Machine shall have auto articulation available to allow the operator to automatically articulate with a steering input. The rear wheels will automatically follow the front wheel. The system is activated by a three position switch: Off, On-forward and reverse, or On - forward only. The system improved maneuverability and performance in tight work space or for easy turn arounds.

BRAKES

- Y___ N___ Machine shall have primary and secondary service brakes.
- Y___ N___ Entire braking system shall meet all requirements of ISO 3450: 2011.
- Y___ N___ Two separate left and right hydraulic brake accumulators shall be standard for safety.
- Y___ N___ Parking brake shall be multi-disc, oil-cooled, spring-applied, hydraulically released, sealed, adjustment-free, and integrated into the transmission. Park brake shall not be externally located.
- Y___ N___ Parking brake shall be serviceable without removing the transmission.
- Y___ N___ Brakes shall be continuously pressurized, filtered, oil cooled.
- Y___ N___ Service brakes shall provide a minimum of 620 in² (4,003 cm²) of friction material surface area at each of the four tandem wheels to eliminate braking loads on the power train.

HYDRAULIC SYSTEM

- Y___ N___ A standard triple redundant hydraulic relief system shall protect machine hydraulic components.
- Y___ N___ Hydraulic implement pump shall produce between 0 and 55.7 gal/min (210L/min) of oil flow at 2,150 RPM.
- Y___ N___ Hydraulic system shall be a closed center, load sensing type, with a variable displacement, axial piston-type pump.
- Y___ N___ Hydraulic system shall be fully sealed, using Duo-cone and O-ring face seals to prevent leaks,contamination, and spillage.
- Y___ N___ The hydraulic tank shall have a baffling system to reduce potential pump cavitations.
- Y___ N___ The maximum hydraulic system pressure shall be no more than 3,500 psi (24,150 kPa).
- Y___ N___ Implement valves shall be electro-hydraulic, designed and built by the machine manufacturer.
- Y___ N___ Lock valves shall be integrated into the main implement valve to prevent cylinder drift.
- Y___ N___ A sight gauge will be provided for checking hydraulic reservoir fluid.
- Y___ N___ Hydraulic oil change service interval shall be no less than 6000 hours with oil sampling
- Y___ N___ Hydraulic system shall have a separate oil tank solely dedicated to the implement pump.
- Y___ N___ Hydraulic filter will have 1000 hour change filter interval.

FRONT AXLE AND TANDEM

- Y___ N___ Front axle oscillation shall be no less than 32 degrees total, per side 16 degrees up, 16 degrees down.
- Y___ N___ Front axle shall be an arched design for maximum ground clearance.
- Y___ N___ Machine turning radius shall not exceed 25 ft. 7 in. (7.8 m) using front steering, full articulation and unlocked differential.
- Y___ N___ Tandems shall be capable of oscillating 15 degrees front tandem up and 25 degrees front tandem down, with full machine articulation and having no interference between tandem wheel and machine structure.

TIRES AND RIMS

Y ___ N ___ A 10 in by 24 in size 3-piece tire rim shall be available to provide mounting for 14.00R24 Bridgestone or Michelin tires.

OPERATORS STATION

- Y ___ N ___ A 42,075 BTU/h (12.3 kW) heater shall have an integral pressurizer and four-speed fan along with A/C.
- Y ___ N ___ Cab shall have angled floor design allowing direct visibility to moldboard.
- Y ___ N ___ Seat shall be a cloth-covered suspension seat with, 3-inch (76 mm) retractable seat belts, with adjustments for fore-aft position, seat height, seat back angle, thigh support, and lumbar support.
- Y ___ N ___ An enclosed cab with ROPS (Rollover Protective Structure) according to ISO 3471 shall be provided.
- Y ___ N ___ Cab shall be isolation-mounted to the front frame section of the machine.
- Y ___ N ___ Cab shall have fixed front window of laminated glass with intermittent wiper.
- Y ___ N ___ Radio arrangement will include 24V to 12V converter, two speakers, antenna and wiring.
- Y ___ N ___ An instrument cluster shall be provided that includes a speedometer, tachometer, coolant temperature, fuel and articulation angle gauge.
- Y ___ N ___ Operator cab fresh air-filter shall be accessible for clean out and replacement, from outside of the cab at ground level.
- Y ___ N ___ A real-time information system shall monitor all system data and alert the operator of any faults through a digital text display.
- Y ___ N ___ Wipers shall be provided on side and rear windows.
- Y ___ N ___ An electronic message system shall provide real-time machine performance and diagnostic data.
- Y ___ N ___ The forward visibility shall be continuous and unobstructed glass from roofline to floor providing visibility of the blade, heel and toe, back of the cutting edge, and front tires.
- Y ___ N ___ Cab shall have cup holder, personal cooler holder/storage compartment for operator's manual, with a molded floor mat.
- Y ___ N ___ Window washer fluid bottle refill spout shall be located external of the cab.
- Y ___ N ___ DEF gauge must be visible to the operator at all times.
- Y ___ N ___ Integrated display and wiring for a rear vision camera shall be available with capability to view at all times without interfering with the gauge and diagnostic display.

CIRCLE & MOLDBOARD

- Y ___ N ___ Drawbar, circle, and moldboard shall be controlled with a maximum of two multifunction, 3-axis joysticks, as standard.
- Y ___ N ___ Drawbar wear strips shall be replaceable drop-in inserts made from nylon composite material, replaceable and adjustable from the top of the drawbar plate via removable cover plates.
- Y ___ N ___ The drawbar shall feature welded protective wear plates to prevent lift group contact with the primary drawbar structure.
- Y ___ N ___ The standard moldboard shall be at least 14 ft long, 24 in (610 mm) high and no less than 7/8 in (22 mm) thick.
- Y ___ N ___ Moldboard shall have a bank slope angle capability of at least 90 degrees to both sides.
- Y ___ N ___ Top Adjust DCM will have Moldboard wear strips shall be adjusted with lock screws, providing shim-less adjustment capability both vertical & horizontal.
- Y ___ N ___ The moldboard shall be pre-stressed during manufacturing for superior strength and durability.
- Y ___ N ___ Circle shall be a single piece, rolled-ring forging, with raised wear surfaces on the top and bottom.
- Y ___ N ___ Circle teeth contact surfaces shall be induction-hardened on the front 240 degrees of the circle.
- Y ___ N ___ Blade lift and center shift cylinders shall have replaceable bronze-alloy wear inserts in the ball sockets with removable shims to insure the ability to remove free play throughout the useful wear insert life.
- Y ___ N ___ All 7 Link Bar positions have replaceable bushings.
- Y ___ N ___ Linkbar pin shall be separate from pin pulling mechanism for easier service and lower O&O costs.
- Y ___ N ___ There shall be 3 sideshift anchor positions shall be provided for extended reach capability as standard.
- Y ___ N ___ Pinion Gear shall be separate from the Pinion Shaft to allow for a quick and easy serviceable design.
- Y ___ N ___ Circle Saver (Pinon grease system) for easier maintenance shall be available from the factory.

ELECTRICAL

- Y ___ N ___ Machine shall have a 145 amp-hour, 1125 CCA heavy-duty battery.
- Y ___ N ___ Machine shall have a minimum 150-amp alternator at 24 volts provided which is brushless for increased life and durability.
- Y ___ N ___ A 24 V to 12 V converter with 10-amp capacity shall be provided.
- Y ___ N ___ LED white reversing lamps and LED stop lamps shall be provided.
- Y ___ N ___ Electrical system shall have a master disconnect switch with a removable key (in addition to the ignition switch), accessible from the ground level.

- Y___ N___ Power must remain available upon key off to purge DEF system lines and protect components.
 Y___ N___ Low bar halogen headlights with front turn signals shall be available.

SERVICEABILITY

- Y___ N___ Machine shall have a lockable swing-out cooling fan housing featuring a latch-style mechanism (shall not be of a bolted design), allowing easy access to cores. Ability to open/close shall be ground level accessible, eliminating need to climb on machine.
 Y___ N___ The dip stick for checking transmission fluid shall be at ground level.
 Y___ N___ Hydraulic tank site gauge shall be readable from the ground.
 Y___ N___ Ability for ground level fueling shall be provided.
 Y___ N___ A two-way communication tool shall give service technicians easy access to stored diagnostic data and allow configuration of machine parameters.
 Y___ N___ Machine shall provide 3 points of contact on all areas of the machine, for mounting and dismounting.
 Y___ N___ The articulation joint shall have mechanical locking device to prevent frame articulation while servicing or transporting machine.
 Y___ N___ Engine primary and final fuel filters shall have 1000 hour service replacement interval with fluid sampling.
 Y___ N___ Engine oil filter shall be a 1000 hour change interval, cartridge style filter
 Y___ N___ Engine primary and final fuel filters shall have 1000 hour service replacement interval.
 Y___ N___ Engine shall have primary fuel filter with water in filter (wif) sensor, quick release dual stage filter and primer pump.
 Y___ N___ Cartridge style filters (engine oil filter, fuel filters) shall have ability to drain filter canisters prior to removal for cleaner and easier filter changes.
 Y___ N___ DEF tank fill shall be located on the same side of the fuel tank fill, and be easily accessible from ground level.

SAFETY AND ENVIRONMENTAL

- Y___ N___ A standard circle drive slip clutch shall be provided to reduce horizontal moldboard impact damage.
 Y___ N___ An external emergency kill switch shall be available for ground level engine shut down.
 Y___ N___ Secondary, electric steering pump shall be provided as a backup to the primary implement hydraulic pump.
 Y___ N___ Operator not present monitoring system will lockout implements, shall not allow gear shift out of neutral, and lock parking brake if system detects operator not present for increased safety.
 Y___ N___ Machine shall have laminated glass for the front windows and doors, to protect the operator from shattered glass.
 Y___ N___ Machine shall provide dual exits allowing for emergency egress should one side become obstructed.
 Y___ N___ Electrical system shall have a master disconnect switch with a removable key and lock for added safety.(in addition to the ignition switch).
 Y___ N___ Machine shall have a steering software system shall automatically reduce steering sensitivity as the ground speed increases.
 Y___ N___ Machine shall have back-up lights and sounding alarm when reverse gears are selected.
 Y___ N___ Cooling fan shall have both a shroud and rear grill for protection during service.
 Y___ N___ Rear vision camera with integrated display and wiring shall be available.

OPTIONAL ATTACHMENTS

- Y___ N___ Machine must have a towing Hitch
 Y___ N___ Outside Mounted Mirrors included
 Y___ N___ A mid-mount scarifier shall be included.
 Y___ N___ Internal Service Lights.
 Y___ N___ LED Strobe light mounted on top of the Cab.
 Y___ N___ Technology to send location, utilization, health and productivity to remote locations

ADDITIONAL

- Y___ N___ 5 year 6,000 Hour Premier/Full Warranty with all Scheduled oil Sampling Kits and diagnosis included and NO travel/mileage/deductible charges for warranty repairs
 Y___ N___ Service and Parts Center within a 50 Mile Radius of Clinch County Public Works Department
 Y___ N___ Operators Manual as well as Parts and Service CD.
 Y___ N___ Includes machine delivered to Clinch County Public Works

JOHN DEERE 670G SPECIFICATIONS

- Y___ N___ Tier 4 Final Turbo Diesel Engine with 170 Horsepower minimum with Reversing Engine Fan
 Y___ N___ Powershift Transmission with minimum 8 gears forward and 6 gears reverse with Auto Diff Lock
 Y___ N___ Minimum 14 foot Moldboard and Blade and equipped with Bolt on Cutting Edges and End Bits

- Y___ N___ 24 Volt Electrical System with minimum 130 AMP Alternator
- Y___ N___ Grading, Rooding and Hazzard Lights and Top Mounted Beacon
- Y___ N___ Joystick Controls
ROPS/FOPS Cab with Air Conditioner, Heater, Front/Rear Wipers and Washers, Air Suspension Seat, Cab Air
Precleaner, Rear Window Defrost, Engine Decelerator, 12/24 Volt Converter, Front Lower Window Wipers and Washers,
- Y___ N___ AM/FM Radio with Weatherband
- Y___ N___ 17.5 Radial Tires on Multi Piece Rims
- Y___ N___ Front Mounted Push Block/Counterweight
- Y___ N___ Minimum Operating Weight 37,000 lbs
- Y___ N___ Rear Camera, Vandal Protection, Fluid Sampling Ports and Full Bottom Guarding
- Y___ N___ Rear Drawbar Hitch with Pin
5 year 6,000 Hour Premier/Full Warranty with all Scheduled oil Sampling Kits and diagnosis included and NO
travel/mileage/deductible charges for warranty repairs
- Y___ N___ Service and Parts Center within a 50 Mile Radius of Clinch County Public Works Department
- Y___ N___ Operators Manual as well as Parts and Service CD.
- Y___ N___ Includes machine delivered to Clinch County Public Works