

**SPECIFICATIONS FOR ARTICULATED MID-MOUNT 27'-30' EXTENDABLE  
BOOM MOWER MOUNTED ON TRACTOR**

**ACCEPTABLE TRACTOR BRANDS/MODELS: JOHN DEERE 6145M, NEW  
HOLLAND T6.175 W/ AUTO COMMAND TRANSMISSION OR EQUIVALENT**

**ACCEPTABLE MOWER BRAND/MODEL: ALAMO 30' MAVERICK OR  
EQUIVALENT**

**MOWER PORTION MUST BE BID AS A SEPARATE INSTALLED  
UNIT AND A COMPLETE UNIT WITH TRACTOR AS LISTED.**

**ALL SPECIFICATIONS ARE CONSIDERED MINIMUM UNLESS OTHERWISE  
NOTED.**

**GENERAL**

The unit bid must be a current production model that has been in production on the open market for a minimum of one (1) year that meets or exceeds the following minimum specifications.

**FRAME & MOUNTING**

- The unit frame shall be mid-mounted to underside of a suitable size tractor utilizing a modular center weldment with front and rear attaching rails.
- Frame mount shall provide for unrestricted movement of boom and offer limited obstructions to forward vision.
- Frame shall be of modular construction from alloy steel and shall be completely bolted during installation (no welding).
- The boom shall utilize a slewing ring bearing for boom function.
- The ring shall be mated by means of a turret. 4,500 lbs. of counterweight integral with frame shall be required.
- Wheel weight shall be configured to tractor/boom combination.

## **BOOM FEATURES & CAPABILITIES**

### **Boom Features**

- Standard boom structure shall be made completely of heavy-duty alloy steel and constructed of a designed, box section geometry, for optimum strength to weight ratio.
- The boom shall feature three main components: lift, outer dipper, and telescopic sections.
- The lift component box section shall be a minimum of 11" tall x 6" wide. The outer dipper component box section shall be a minimum of 10" tall x 6" wide.
- The telescopic box section shall be a minimum of 4.5" tall x 4.5" wide and shall extend out a minimum of 3'. The telescopic section shall provide 6 adjustable slide puck assemblies for slide control and minimal tube deflection. These will have low-friction, self-lubricating Nylatron WP PA6 inserts.
- Main pivots shall utilize 2" chrome pins with greaseable, hardened steel Connex style bushings.
- A front axle-mounted stabilizer cylinder shall be featured as standard providing automatic self-adjusting stability of the full package unit when in operation.

### **Boom Movement**

- Standard boom functions shall feature horizontal swing, vertical lift, dipper reach, telescopic reach, and mower head tilt. Boom swing angle shall be customized per tractor to accommodate cutting within 12" of front tire.
- Boom swing shall be controlled by two standard dual acting cylinders.
- Boom swing shall be a minimum of 180°, controlled by the joystick from the operator's platform.
- The telescopic reach shall be a minimum of 3' fully extended.

### **Boom Reach (with 60" rotary head)**

- The minimum reach-up shall meet 27'-10".
- The minimum reach-out shall meet 30', with telescopic section fully extended.

- The minimum reach down shall be 19'-3" below tractor ground level.
- Boom mower head shall have the ability to mow horizontally within 6" of the rear tractor tire.

(Note: All measurements are based on a 96" outside tire spread with 18.4 x 34 tires.)

### **Boom Cutting Head**

- The boom shall feature four-bar linkage to allow for 205-degree mowing head rotation.
- The cutting head shall feature a hydraulic pivot enabling the head to be transported within 108".
- The boom shall feature a 60" heavy-duty rotary cutting head as standard.
- The manufacturer shall offer an array of cutting heads in the sizes and applications meeting or exceeding the following list of optional heads:
  - 50" Heavy Duty Rotary
  - 48" Flail-Axe Flail
  - 52" Battle Axe HD Flail
  - 60" Heavy Duty Grass Flail
  - 5' Sickle Bar Limb Cutter
  - 2 (48"), 3 (69") blade Saw Blade Tree Cutter

## **OPERATION & POWER**

### **Hydraulics**

- The unit shall feature a self-contained hydraulic circuit for both mowing head and boom control circuit.
- The mowing head circuit shall feature a closed-loop hydrostatic variable displacement piston pump rated at 101.8 horsepower continuous with 5100 PSI peak pressure.
- The hydrostatic pump shall provide a no-flow neutral position while mowing head circuit is "OFF."
- The hydrostatic pump shall feature a charge pump to refresh and cool the cutter circuit.

- Boom control circuit shall feature a load-sensing, variable displacement piston pump. The secondary control pump shall be load-sensing and rated at 44 horsepower continuous with 4000 PSI peak pressure.
- Both pumps shall provide internal relief for component protection.
- All high-pressure hydraulic hoses shall be of four-wire braid construction with a minimum rating of SAE100R12.
- System Hydraulic fluid must be of a superior grade with anti-wear additives that conform to ISO AW Viscosity Grade 100.

### **Hydraulic Reservoir**

- The unit shall have a 32 Gallon, front mounted hydraulic reservoir for improved operator visibility, safety, and operator access. (Side mounted tanks will not be accepted.)
- The reservoir shall feature visual indication of oil level and temperature to ensure proper volume levels are maintained in order to support motor and boom control circuits.
- Conveniently accessed points for draining and cleaning of reservoir shall be featured.
- Frontal protection for the reservoir shall be provided by a heavy-duty steel bumper plate.
- A durable, two-piece steel metal cover shall be vented and hinged to provide access to components.

### **Cylinder Control Valve**

- The unit shall feature a mono-block, 7-section, electro-hydraulic, multi-directional control valve.
- The valve shall be a closed-center load-sensing type featuring section-specific pressure compensation.
- The valve shall be equipped with a 3500 PSI main relief.
- The main control valve shall be equipped with counterbalance valves for swing, lift, and dipper functions.
- The main control valve shall allow for a minimum of four functions to be operated simultaneously.
- The swing, lift, dipper, and door sections shall have proportional valve control.
- The main control valve shall be protected from falling debris by a vented steel cover.

- The main control valve shall feature a manual over-ride for each spool in case of joystick failure.

### **Filtration**

- The unit shall feature a Hydrostat charge loop filter providing a minimum of ISO 4406 class 18/13.
- The unit shall also feature a Hydrostat charge suction filter providing a minimum of 100 mesh filtration at full flow.
- The control valve filter shall provide a minimum of ISO 4406 class 18/13. A secondary control pump suction filter shall be featured providing a minimum of 100 mesh filtration at full flow.

### **Tandem (Mower head and Boom Control) Pumps**

- The unit shall feature a control valve pressure filter rated for a minimum of 4000 PSI
- The control valve return filter shall provide a minimum of ISO 4406 class 18/13.
- A secondary control pump suction filter shall be featured providing a minimum of 100 mesh filtration at full flow.

### **Drive System**

- A telescopic driveline with greaseable universal joints shall be featured to accommodate installation and maintenance.
- The driveline shall be hard mounted to engine crankshaft and secured to pump shaft with double-bolt style clamping yoke.
- Standard tube diameter shall be at maximum 2" round with 14-gauge wall thickness.
- Ultimate strength of driveline shall be 33,542-inch pound of torque.
- A cover shall be featured to provide shielding of high-speed rotating parts.

### **Cooling Unit**

- The hydraulic system shall contain as standard equipment, an oil-to-air cooler with electric fan mounted on top of the hydraulic reservoir and protected by a vented steel cover.
- The fan shall be thermostatically controlled and feature a red warning indicator and audible alarm to indicate an over-temp

situation. An optional cooling fan reversing circuit shall be available to provide a “self-cleaning” feature.

### **Boom Control**

- All valve functions are electronically operated by means of a single joystick.
- The Joystick base shall feature indicator lights to verify mower head engagement, fan-on operation, and system over heating warning.

### **Tractor Requirements**

- The most suitable tractor shall be a 4WD model weighing a minimum of 12,555 lbs. and have a minimum rating of 116 PTO HP.

## **OPERATOR PROTECTION & SAFETY**

- The mower cutter head shall have a six-second emergency shutdown engaged by the operator from inside the tractor cab. The button shall be located within easy reach for complete power shutoff of motor circuit.
- The boom controls shall feature a master ON/OFF switch for complete power shutdown. An “Enable” function shall be incorporated into controls to prevent incidental boom movement.
- Polycarbonate (Lexan®) window protection shall be offered as standard on CAB tractors as well as on ROPS tractor variations.

## **MISCELLANEOUS**

### **Boom Rest**

- A 2-piece boom rest shall be mounted to the rear axle or to the mower frame to cradle the boom when it is in transport position. The rest shall take pressure off the lift, dipper, and swing cylinders when in transport.

## **Weight**

- The unit shall have a shipping weight of approximately 10,450 pounds (excluding tractor weight).

## **Product Liability Insurance**

- Bidders must include a copy of mowing equipment manufacturer's **Certificate of Insurance for Product Liability of at least \$25,000,000 for the products subject to its bid.**

## **Parts & Service Requirement**

- Each bidder must be a manufacturer's franchised dealer that must have parts, sales & service, service trucks within 250 miles on the spreadsheet for regional address attachment

## **Operation and Maintenance:**

- Successful bidder shall be required to furnish a qualified individual(s) to provide operator preventative maintenance & safety orientation for approx. four (4) hours at each delivery location.

## **SAFETY AND TESTING**

Due to the severe mowing conditions, safety tests are a requirement for the operator's safety and highway traffic safety. All equipment must meet or exceed the requirements on attachment D.

## **60" HEAVY-DUTY ROTARY CUTTING HEAD (STANDARD)**

### **Cutter Head Features & Capabilities**

- The unit shall have a minimum cutting width of 58".
- The cutter head shall cut grass, weeds, and brush up to 5" in diameter.
- The cutting head top deck shall be constructed using a minimum of A606 alloy steel or equivalent.
- The side skirts shall be constructed using a minimum of 3/8" steel.
- Top of the deck shall be reinforced with a channel frame and a reinforced spindle mount plate.

- The cutting head shall feature full-length, replaceable skid-shoes.

### **Spindle**

- The spindle shall be a minimum of 4-1/2" x 9" heat-treated, H-13 modified, alloy tool steel.
- The spindle bearing shall be tapered roller bearings, 2-1/2" ID top and 2-5/8" ID bottom, in a sealed housing.

### **Blade Carrier and Blades**

- The blade carrier shall be three-leaf, stacked blade-bar type with the bottom leaf being made out of T-1<sup>®</sup> steel.
- The blades shall be 5/8" x 5" x 14-5/8", 360-degree full-swinging, double-edged, and constructed of tempered steel.

## **OPERATION & POWER**

### **Motor**

- The motor shall be a cast-iron, piston-type, rated at 205 HP at 4,100 RPM and 6,000 PSI.
- The spindle speed shall be a minimum of 1,220 RPM and 4,916 in. lb. of torque.

### **Motor Drive**

- The motor drive shall be direct drive, splined and totally enclosed. This specifically excludes a chain or dodge coupler.

### **SAFETY**

- The front shield shall be hydraulically actuated, center feed, metal door operational from the joystick control.
- The rear shield shall be constructed of rubber material.

## **SAFETY AND TESTING**

Due to the severe mowing conditions, safety tests are a requirement for the operator's safety and highway traffic safety. All equipment must meet or exceed the requirements on attachment D.



## **MISCELLANEOUS**

### **Weight**

- The cutter head shall have a shipping weight of approximately 1,000 lbs.

### **Parts and Service**

- Each bidder must be a manufacturer's franchised dealer that must have parts, sales & service, service trucks within 250 miles on the spreadsheet for regional address attachment

### **Operation and Maintenance:**

- Successful bidder shall be required to furnish a qualified individual(s) to provide operator preventative maintenance & safety orientation for approx. four (4) hours at each delivery location.

### **Product Liability Insurance**

- Bidders must include a copy of mowing equipment manufacturer's **Certificate of Insurance for Product Liability of at least \$25,000,000 for the products subject to its bid.**

## **SPECIFICATIONS FOR TRACTOR, 116 PTO HP, 4WD HEAVY DUTY BOOM MOWER TRACTOR**

**ACCEPTABLE BRANDS/MODELS: JOHN DEERE 6145M, NEW HOLLAND T6.175 W/ AUTO COMMAND TRANSMISSION, OR EQUIVALENT**

**ALL SPECIFICATIONS ARE CONSIDERED MINIMUM UNLESS OTHERWISE NOTED.**

- Shipping Weight Unballasted (S.A.E.): Minimum: 12,555 lbs.
- Engine: Tier 4B, turbocharged, air-to-air intercooled diesel, w/cold starting aid. Must be B-20 compatible while maintaining full warranty.
- Fuel Moisture Separator: Required

- Cylinders: 4-cylinder frame-mounted
- Displacement: 4.5L; 274 cubic inch minimum
- PTO Horsepower (SAE): 116 hp minimum
- Rated Engine Power (ISO): 145 hp minimum
- Transmission: Minimum 16F/16R, w/left hand power reverser, power shift through 4 gears in each of the four ranges
- Clutch: Wet
- Main Tractor Hydraulic System: Direct gear driven
- Selective Control Valves: 2 mechanical minimum
- Main Hydraulic Pump: Load Sensing Variable Displacement Pump
- Front Mount Crankshaft for Hydraulic Pump Drive: Required
- Hydraulic Pump Flow at a Single SCV: 114 L/min
- Remote Hydraulic Valves: Two (2) sets of dual remotes from tractor main hydraulic system
- Exhaust: Vertical
- Final Drive: Planetary
- Rear Axle: Bar Axle, Flange not acceptable
- Differential Lock: Required
- Brakes: Wet disk
- PTO w/Guard & Wet Clutch: 540/1000, electric hydraulic engagement. Digital PTO speed indicator
- Adjustable Telescopic Sway Bars: Right & left side of the draft lift arms, tube type with pins (**NOTE:** Adjustable chains are not acceptable) Dealer installed is acceptable.
- Hitch: Category 2, 3-point w/telescopic link ends w/top link
- Draft Sensing Method: Lower Link Required
- Wheels: Bar or Rack & Pinion Thread width to be delivered approximately 76" center to center.
- Factory Cab: Factory installed w/heater & air conditioner, ROPS (Roll-Over Protection Structure). Items advertised as standard to include tinted safety glass. OSHA & ANSI approved.
- Seat: Spring suspension, w/seat belt & arm rest
- Digital ground speed indicator, dash mounted- required
- Manufacturer Standard Gauges: **1)** Lighted Instrument Panel; **2)** Tachometer; **3)** Electric Hour Meter; **4)** Temperature Gauge; **5)** Warning Lights for Oil Pressure & Alternator; **6)** Fuel gauge; **7)** PTO Warning Light or Buzzer.
- Steering: Power, w/tilt & telescopic column

- Throttle: Hand & Foot
- Electrical System: 12-volt, key start, 120 AMP alternator, 1230 CCA battery.
- Fuel Capacity: 52.2 gallons minimum
- Lighting Package: Two (2) headlights; two (2) taillights
- Warning Flashers: Required
- Rear Fenders: Required
- SMV (Slow Moving Vehicle) Emblem: Required
- Color: Manufacturer standard
- Unit to Contain All Equipment Advertised as Standard by the Manufacturer.
- Anti-Freeze Solution: Protected to -34 degrees F.
- Access to Parts Inventory: Successful bidder shall provide access to manufacturer's repair parts inventory through factory web access or DVD.

Manuals: One (1) operator & (1) service manual-paper, CD or internet access. One operator safety CD required for safe operation training.

- Parts & Service Requirement: Each bidder must be a manufacturer's franchised dealer that must have parts, sales & service, service trucks within 250 miles on the spreadsheet for regional address attachment