

4x4 Utility Work Machine

GENERAL REQUIREMENTS

- a. Machine includes two forward facing seats – operator and passenger
- b. Machine to include a front loader (i.e. lift arm with double acting hydraulic cylinders)
- c. Front loader is capable of accepting quick-attach attachments
- d. Rear of machine incorporates a cargo box
- e. Engine will be a diesel, rated at 62 hp (46.2 kW) Gross, 59.0 hp (44. kW) Net.
- f. Exhaust system will have an approved USDA Forestry Service spark arrester

DRIVE SYSTEM REQUIREMENTS

- a. Full-time four wheel drive system
- b. Limited slip differentials provided in both axles
- c. Transmission to be hydrostatic
- d. Drive system to have Traction Control

DRIVE CONTROLS

- a. Machine equipped with separate controls for engine speed and travel speed
- b. Drive speed controlled by a single pedal
- c. Engine RPM controlled by a hand lever
- d. Travel direction controlled by a shuttle lever which includes positions for Forward, Reverse, and Park
- e. Placing the shuttle lever in the “Park” position must engage the parking brake, and disable the drive controls
- f. A neutral start feature must be provided which requires machine be in the “Park” position (parking brake applied) before engine can be started

STEERING

- a. Steering angle to be shared by both axles through an all-wheel steering system
- b. The turning diameter will be 17 feet (5.2 m). (The diameter of the circle made by the outside tires in a full turn)
- c. Steering to be activated by hydraulic power steering and controlled by a steering wheel with tilt adjustment

6. SUSPENSION

- a. A suspension system will be provided between the frame and each axle of the machine
- b. Front independent suspension will consist of coil springs with overload stops and shock absorbers
- c. Rear independent suspension will consist of coil springs with overload stops and shock absorbers

CAB

- a. Front and rear cab windows provided, and made from tempered safety glass
- b. Dual-arm front windshield wipers provided with a windshield washer system
- c. 12 volt power port for accessories provided in the cab
- d. Interior dome light provided
- e. Two cup / beverage holders provided
- f. Factory installed cab enclosure, heating, ventilation, and air conditioning (HVAC) must be available

- g.** Cab enclosure will consist of two steel frame doors with locking handles and tethers to restrict door open angle
- h.** Driver's seat must be provided with inclined adjustment tracks
- i.** A seat hip restraint must be provided for the passenger
- j.** Four halogen work lights provided on the front which can be positioned independently of each other

ATTACHMENTS / IMPLEMENTS

- a.** Attachments must be front mounted
- b.** Connections for all attachments must be "Bob-Tach" compatible to match our equipment inventory, and meet SAE J2513 for coupling of attachments
- c.** Activation of quick-hitch provided by two over-center locking levers with wear compensation features
- d.** Hydraulic connections supplied via hydraulic quick-couplers with a flush-face design
- e.** Hydraulic supply to attachments must be at least 18 gpm (68 lpm) with an optional hydraulic flow of 27 gpm (102 lpm).
- f.** Hydraulic pressure release system must be provided to relieve residual pressure trapped in the attachment hydraulics for easier attachment changes
- g.** Primary attachment hydraulics activated by switches integrated into the loader joystick
- h.** Primary attachment hydraulics must have the ability to lock into continuous flow (detent) in both forward and reverse directions
- i.** A supplemental control system must be available to control additional attachment functions from the cab using dash-mounted switches.

TRAILER CAPACITIES

- a.** A rear receiver hitch system will be provided which is capable of accepting 2-inch receiver-style hitches, and meets the "Hitch Strength Requirements" identified in section 6.1 of SAE J684
- b.** The rear receiver hitch must be capable of withstanding 500 lbs. (227 kg) of tongue load
- c.** The machine must be capable of pulling and stopping tow loads of 4,000 lbs. (1814 kg)

LOADER

- a.** Loader Rated Operating Capacity = 1500 lbs. (680 kg) per SAE J818 and ISO 14397
- b.** Loader functions controlled by a single pilot-operated hydraulic joystick
- c.** Lift-arm "float" feature must be provided and activated by the hydraulic joystick
- d.** An approved lift-arm support device must be provided on the machine to mechanically support the lift arm if raised for service work. The lift-arm support must meet SAE J38 and ISO 10533.

CARGO AREA

- a.** Cargo box load capacity = 2000 lbs. (907 kg)
- b.** Hydraulic dump provided by two hydraulic cylinders, and activated by a cab mounted control
- c.** An approved cargo box support device is required on the machine to mechanically support the box if raised for service work. The box support must meet SAE J/ISO 13333
- d.** Box sides are bolt-on and can be removed to make a flat-bed
- e.** A tailgate is provided which includes a quick-latch system, and is capable of supporting at least 300 lbs. of load in the open position.
- f.** Stake pockets must be provided on the sides and front of the cargo box

APPLICABLE STANDARDS

- a.** Machine must comply with the following design and safety standards: SAE J2258 –Light utility vehicle standards ASME / ANSI B56.8 – Safety standard for personnel and burden carriers (Note: Horn required for full compliance)
- b.** SAE J1040 and ISO 3471 - Roll-Over Protective Structure (ROPS)
- c.** SAE J1043 and ISO 3449 - Level 1 - Falling Object Protective Structure (FOPS)
- d.** SAE J732 – Loader specification definitions
- e.** ISO 14379 – Part 1 – Calculation of loader rated operating capacity and test method for tipping load
- f.** ISO 2867 – Access systems for earth-moving machinery
- g.** ISO 3411 – Human physical dimensions and minimum operator space envelope
- h.** ISO 6682 – Zones of comfort and reach for controls
- i.** ISO 3450 – Braking systems and performance requirements for rubber-tired machines
- j.** ISO 5010 – Steering capability for rubber-tired machines
- k.** SAE J386 – Operator restraint system for off-road work machines
- l.** ISO 6683 – Seat belts and seat belt anchorages
- m.** SAE J38 – Lift arm support devices for loaders
- n.** ISO 10533 – Lift arm support devices
- o.** SAE J/ISO 13333 – Dumper body support
- p.** SAE J2513 – Coupling of attachments to loaders
- q.** SAE J684 – Trailer couplings, hitches, and safety chains – automotive type. Section 6.1 “Hitch Strength Requirements”