SPECIFICATIONS

INSULATED 30 FT. WORKING HEIGHT ARTICULATING AERIAL DEVICE

Revised: 31July2002

It is the intent of the following specifications to set minimum requirements for an INSULATED 25-ft. bottom of platform, 30 ft. working height rear mounted aerial device with a side mounted one-man platform. These specifications must be considered minimum requirements. Any exceptions to these specifications must be so stated in your bid. All units must meet or exceed OSHA and ANSI/SIA A92.2-2001 standards, without exception.

GENERAL SPECIFICATIONS

Height to bottom of platform	25 ft. 6 in.
Working height	30 ft. 6 in.
Horizontal reach from centerline	15 ft. 4 in.
Rated capacity of platform	350 lbs.

Aerial device shall be primed with an etching/sealing primer and finish painted with urethane hardened enamel paint. Components to be painted or powder coated prior to assembly.

Aerial device, power sources, and all mounting attachments shall not exceed 2,500 pounds weight.

STABILITY

Completed unit shall be capable of passing ANSI/SIA A92.2-2001 stability test when mounted on a cab/chassis of at least 10,500 GVWR. Use of counterweight, torsion bar or outriggers may be required for stability.

HYDRAULIC SYSTEM

Operating pressure shall be a maximum of 2000 PSI. Operating oil volume shall be 2.5 GPM for lift operation. Open center type hydraulic system shall be used. Unit shall be equipped with a 10-micron filter in the return line and a 100-mesh screen at the suction port of the 10-gallon oil reservoir. System pressure relief to be integral to the lower control valve.

Double acting hydraulic cylinders equipped with an integral holding valve shall provide boom motion. Upper boom to articulate through use of a hydraulic cylinder attached directly to lower boom and four bar linkage to upper boom. Articulation through use of cables or chains is unacceptable. The upper and lower boom cylinders shall be identical for ease of service.

All hydraulic adapters must be machined from forgings. Brazed hydraulic adapters are not acceptable. Hydraulic hose to be non-conductive Parker 518C with permanent crimped on fittings. Reusable fittings can be used for field repair.

MECHANICAL SYSTEM

The pedestal shall be 0.25 in. steel welded into a rectangular structure with a 1.0 in. top plate. The hydraulic reservoir will be a separate component mounted inside the pedestal for protection. The reservoir will include a sight glass indicating oil level and temperature. Hydraulic reservoir to be constructed from steel and powder coated for maximum cooling and protection from corrosion. Hydraulic reservoirs integral to the pedestal are not acceptable.

The turret assembly will be a welded assembly with 0.50 in. sides and 0.75 in base plate. The turret and pedestal will be fastened to the rotation system with 0.63 in. diameter grade 5 hex head cap screws tightened to a specified torque. Rotation cap screws to be installed with a thread locking liquid to prevent loosening.

Platform shall be one piece fiberglass, 24 in. x 24 in. x 42 in. with a molded step at 90 degrees to the rear of the mounting ribs. A non-skid surface will be bonded into the step surface. Self adhesive non-skid strips are not acceptable.

All pivot pins shall have a minimum tensile strength of 100,000 PSI. Pins shall be zinc plated and have non-lube bearings at all points of boom movement.

BOOM ASSEMBLY

The aerial device shall be a non-overcenter articulating type. The lower boom and steel section of the upper boom is to be fabricated from 5 in. x 7 in. high strength/low alloy steel tubing with a minimum yield of 70,000 PSI. The lower boom shall operate from – 5 degrees to plus 95 degrees. The upper boom shall travel up to 160° relative to the lower boom.

The mechanical leveling system includes #60 roller chain, 0.50 in. steel rods in the lower boom and 0.50 in. fiberglass rods in the upper boom. Leveling and tension adjustment is at the knuckle and includes hex turnbuckles for ease of actuation. Hose guides to be included to isolate the leveling system from the hoses at the elbow and turret. Exterior mounted leveling systems and/or systems using leveling cables are not acceptable.

A section of the upper boom shall be constructed of filament wound fiberglass reinforced plastic using epoxy resin and oven cured for consistent strength. Hand layed up booms or catalyst cured polyester resins are not acceptable. The upper boom shall be dielectrically tested and certified to meet ANSI A92.2-2001 for Category C, 46Kv and Below.

MOUNTING:

The pedestal base shall be mounted on cross members underneath the body floor. The body floor must be removed to allow the base to be bolted directly to the cross members and isolate it from the body floor. Mounting that attaches to or sandwiches the floor is unacceptable.

Platform access step from the body load space is required. A boom rest with a rubber pad molded to a steel plate and ratchet tie down strap shall be mounted in the body load space. Rubber pads not molded to a steel plate are unacceptable. A single strap must secure both upper and lower booms. A platform rest made from rubber tubing is required.

ROTATION

Rotation shall be accomplished through use of a "shear ball" bearing and worm gear drive system built as an integral component. The worm gear is self-locking and "hourglass" shaped for multiple points of contact between the worm and the helical gear teeth of the rotation bearing. Rotation shall be limited to 540° non-continuous by means of a mechanical stop. Electric or hydraulic rotation stops are not acceptable. Hydraulic swivels must be installed on the pressure and return lines to prevent twisting of the hoses.

The rotation system must be set at the factory and not require any field adjustment. Separate right angle drive gearboxes that require periodic adjustment are unacceptable. The worm shaft shall have exposed hexagonal end for manual rotation.

CONTROLS

Both upper and lower controls shall be individual lever manual hydraulic valves for "Full Feathering" operation with any power source. The upper controls must be located between the boom and platform for maximum protection from damage. The lower controls shall be capable of overriding the upper controls. Emergency stop is provided as an integral part of the upper controls. Monoblock valves must be used to minimize leakage points.

The upper control levers at the platform shall automatically return to neutral position and lock when released.

SAFETY FEATURES

A holding valve shall lock boom cylinders in position in the event of hydraulic hose failure.

Unit shall have a rotation system that prevents freewheeling in the event of hydraulic failure.

Hoses shall be covered with a cordura sleeve in areas of abrasion.

Controls at pedestal shall override controls at bucket in the event of operator becoming incapacitated.

Unit shall have an automatic hydraulic limit to prevent upper boom from traveling overcenter.

Locking devices shall be incorporated into the upper controls per ANSI/SIA A92.2-2001. An emergency stop control shall be integrated into the upper control valve at the platform.

A fall protection anchor must be attached to the upper boom. Anchors attached to the platform or platform support are not acceptable. A body harness and shock absorbing lanyard must be provided for fall protection.

OPTIONAL EQUIPMENT

CONTINUOUS BOOM ROTATION

Continuous and unrestricted boom rotation is provided by a combination hydraulic and electric rotary joint mounted in the turret. The rotary joint provides passages for oil and electric signals from the operator's platform.

MANUAL PLATFORM TILT

A mechanical hinge and latch system is provided for tilting the operator's platform for rescue or cleanout. A separate locking pin prevents inadvertent operation.

SINGLE STICK UPPER CONTOL

The single stick control provides lower and upper boom functions along with boom rotation from one control. When depressed, the safety trigger under the single stick provides hydraulic flow for the boom operations. No separate emergency stop is required.

EMERGENCY LOWERING (CHOOSE ONE)

With the engine belt drive and PTO options, a separate emergency lowering system will be powered by a 12V DC motor located in the pedestal. Controls to actuate the emergency lowering system shall be at the upper and lower controls.

With the electric power and dual power source options, the operator can utilize the chassis battery for emergency lowering. The same 12 VDC motor is used for normal and emergency operation.

HYDRAULIC POWER SOURCE (CHOOSE ONE)

Hydraulic power shall be provided by an engine accessory belt drive powered pump of sufficient size to furnish 2.5 GPM at engine idle. Engine stop/start is provided from upper controls.

Hydraulic power shall be provided by a transmission mounted PTO and pump of sufficient size to furnish 2.5 GPM at engine idle. Engine stop/start is provided from upper controls.

Hydraulic power shall be provided by a heavy duty 12 VDC motor mounted in the pedestal. The motor must be able to deliver 2.5 GPM. Auxiliary batteries (2 ea. Group 8D) batteries shall be supplied mounted in a powder coated metal enclosure for mounting in the body load space. The batteries are to be charged from the chassis alternator when the engine is running. Engine stop/start is not required.

Hydraulic power shall be provided by a combination of an engine accessory belt drive powered pump of sufficient size to furnish 2.5 GPM at engine idle and a heavy duty 12 VDC motor mounted in the pedestal. The motor must be able to deliver 2.5 GPM. The operator can select the power source from the upper controls. A control to actuate the 12 VDC motor is provided at the lower controls. Engine stop/start is provided from the upper controls. Auxiliary batteries (2 ea. Group 8D) shall be supplied mounted in a powder coated metal enclosure for mounting in the bed load space. The batteries are to be charged from the chassis alternator when the engine is running.

HYDRAULIC TOOL CIRCUIT – REQUIRES TWO SPEED THROTTLE

An outlet for hydraulic tools shall be provided at the operator's platform. The circuit includes a selector valve integral to the upper control valve and an outlet manifold. The system is designed for 5 GPM. Quick disconnect fittings do not need to be included. A two speed engine throttle is required. At low idle, the pump shall provide 2.5 GPM flow for boom operation. At high idle, the pump shall provide the 5 GPM flow for tool operation.

TWO SPEED THROTTLE (CHOOSE ONE)

A solenoid activated from either the upper or lower controls shall increase the engine idle for hydraulic tool operation. The solenoid must be deactivated for road travel through the aerial master switch.

The two speed throttle system shall provide an electric signal for the chassis electronic engine control system. The signal shall be activated from the upper or lower controls and increase engine speed for hydraulic tool operation. The signal circuit must be deactivated for road travel through the aerial master switch.