CRANE EQUIPMENT
MANUFACTURING CORP.

33740 Seavey Loop • Eugene OR 97405-9602
www.grizzlycranes.com • ☎ (541) 746 – 9681 • 🖷 (541) 746-8928

We at Crane Equipment Manufacturing Corporation greatly appreciate your interest in our solid waste compacting cranes. We have many options and system set-ups to accommodate most any transfer station. Since we are the complete manufacturer of all our systems we are able to customize anything to meet our customer's needs and specifications, from remote operator's location, to fully contained units and most anything in between.

Crane Equipment Mfg. Corp. prides itself in giving its customers a high quality, durable piece of machinery.

I hope the information I have supplied to you will give you an idea of who and what we are. We truly believe that our customers are the most important aspect of our business and that excellent customer service is our number one job.

We can also supply CAD drawings of our equipment to help your engineers in the designing or retrofitting of any transfer station. Our engineering department works very well with our customers to help avoid any unforeseen circumstances and make sure they are getting the right machine to fit their needs and facility requirements.

If you or anyone at your company have any further questions or would like to discuss options, system design, etc., please feel free to call or e-mail us for a quick response. We know your time is valuable to you as it is to us.

Respectfully,

Jack T. Makinson
Chief Operations Officer

Manufacturers of "GRIZZLY" Knuckleboom Cranes
Since 1977

GRIZZLY

KNUCKLEBOOM CRANES

CRANE EQUIPMENT MFG. CORP.

SOLID WASTE ▪ LOGGING ▪

Experience: One of many third-generation Grizzly solid waste cranes.

GRIZZLY. . . PROVEN EXPERIENCE

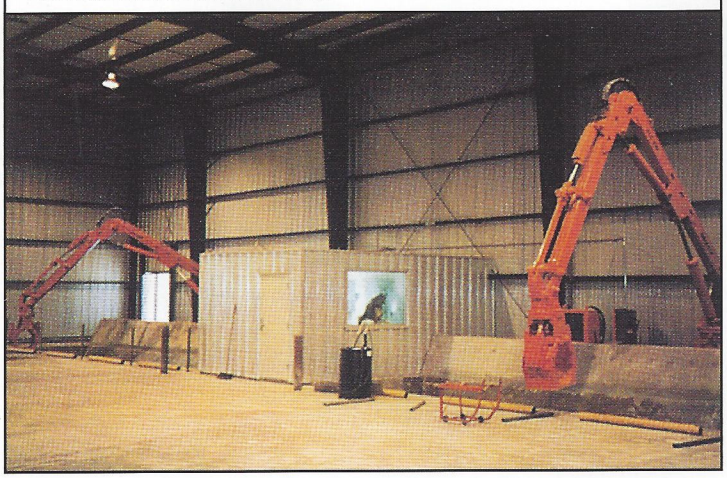
Beginning in 1977 with an adapted log-loader, the ever-improving Grizzly cranes have earned a place in trash transfer stations from coast to coast. There, the quiet non-polluting machines rearrange refuse heaped into open-top transfer trailers. They lift, mash and separate the material, steadily working in one of the harshest environments.

Customers report increased payloads after installing a Grizzly in their transfer station—up to 5,000 pounds more. And they say the volume can be 50 percent greater than compactors alone achieve. Throughput is speeded yet the trailer-crane design isn't vulnerable to the system-stopping bottlenecks of other equipment.

In addition to knuckleboom cranes, Grizzly grapples are available to attach directly to other manufacturers' excavators and backhoes.

The Grizzly knuckleboom crane and grapples are modern tools developed and refined by years of experience—tools to complement your community's solid waste plan.

Remote controlled Grizzlies.



A specialized Grizzly 215MT self-loader

VERSATILE—THAT'S GRIZZLY.

Our customers decide how the Grizzly will be designed, built and used. What material handling need do you have? You imagine it and we'll build it! Here are three examples:

Practical application #1: a trash transporter, shown above. A Grizzly knuckleboom crane on a flatbed truck, equipped with a customized grapple, self-loads rectangular bales of trash ejected from a baling machine in a solid waste transfer station. The unit transports the 12 tons or so of compacted garbage, then offloads and stacks its burden in a landfill.

Practical application #2: a building materials positioner. A Grizzly-equipped "boom truck" places fragile building materials (like drywall, acoustical ceiling tile, or computer-room flooring) on upper floors of existing buildings. Using wristing-motion and custom attachments, Grizzly muscle conserves human muscle.

Practical application #3: a mobile trash compactor, shown below. A Grizzly-equipped truck cycles among rural trash dropoff sites. At each stop, the crane is used to re-arrange the trash deposited in open-top trailers (removing unacceptable items), then the full-weight trailers are hauled to the landfill. Because the Grizzly compacts and redistributes the garbage, hauls can be made less frequently.

A mobile trash compactor.

MOBILE ▪ STATIONARY ▪ LI

CONSTRUCTION ▪ MARINE

A Grizzly moves cardboard onto a sorting conveyor.

GRIZZLY HELPS AMERICA RECYCLE.

Portable and stationary Grizzly cranes and customized attachments help **recover resources** like scrap metals, cardboard (shown above) and paper. Grizzlies feed wood and yard waste into shredding and composting machines as shown below. Grizzlies also tote-and-sort timbers and railroad ties.

...and...

Grizzly cranes also can be applied to **recycling at curbside** by hoisting such large items as furniture and appliances, or collection bins, onto a truck for transport to recycling depots.

...and...

Grizzlies divert unacceptable items from incinerator-infeed conveyors at **waste-to-energy** and resource derived fuel plants. And, equipped with specialized attachments, Grizzlies can handle hazardous waste barrels.

Grizzly cranes feed wood waste into shredders.

Special use grapple built for an excavator.

GRIZZLY CRANES. . . CUSTOM-CRAFTED, USABLE QUALITY.

Each Grizzly crane, whether portable or stationary, is a unique, custom designed machine. Engineered for your site and application so you don't have to adapt them — or buy capacity and features you don't need. They are shipped fully assembled.

Grizzly cranes are hand-built by an experienced and skilled crew, using the finest components obtainable, which gives you a ready-to work, dependable, finished product.

GRIZZLY CRANES, LIKE GRIZZLY BEARS, . . . BRAWNY!

The Grizzlies that roam the Northwest woods today are steel-and-hydraulic Grizzlies. As rugged and durable as the awesome bear, Grizzly self-loaders were the first in the logging industry to sport a triple-hydraulic pump, heel bars on both the main and jib booms, and outrigger locks. Today, in the 5-to-15 ton class, Grizzly self-loaders like the one pictured below, continue to be the choice of the Northwest.

One of hundreds of Grizzly self-loaders in the Northwest.

FT ▪ COMPACT ▪ SELF-LOAD

COAST-TO-COAST, GRIZZLIES ARE GRAPPLING.

From individual log-truckers and fishing boat owners to major corporations moving timber and building materials . . .

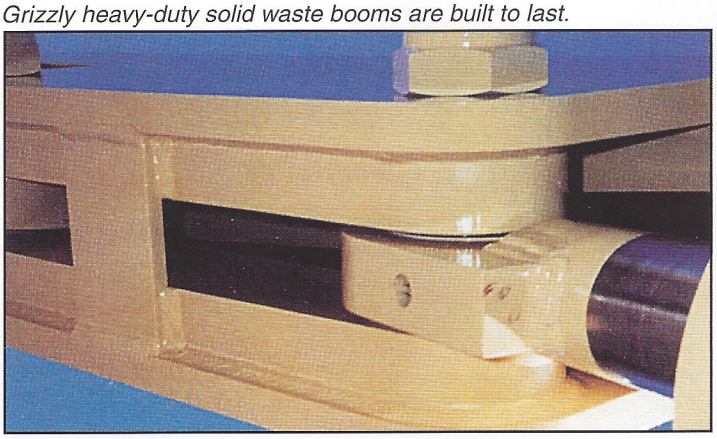
. . .from small trash haulers and recyclers to mammoth public agencies coping with metropolitan waste streams . . .

. . .from Dead Horse, Alaska, to Miami, Florida, from Cape Cod, Massachusetts, to Commerce, California . . .

. . . from 1977 to the present . . .

Grizzly handles it.

Grizzly heavy-duty solid waste booms are built to last.



TAKE A CLOSER LOOK.

We invite you to compare Grizzly to other cranes. Check the booms. Look at the welding. Notice the quality of the components. Ask users about their experience. Check out willingness and ability to make a crane for your needs.

Inquire about a Grizzly's accessibility for service, about protection of vulnerable areas, about availability of replacement parts, updates and retrofits. Find out about incorporating special-use attachments. Compare maintenance costs with other equipment working in the same environment.

Discover why Grizzly's reputation for quality and workmanship is by design — not accident.

We invite you to visit the factory and watch as a skilled, experienced crew hand-crafts — with pride — a custom-engineered Grizzly. Check out the preparation detail before the durable paint is applied. Listen to the quality-control discussions held about each crane — inspections that must be passed before the bear logo goes on the machine.

GRIZZLY — custom-crafted, brawny and versatile.

GRIZZLY — *One Bear of a Crane!*

CRANE
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Rev 12-11

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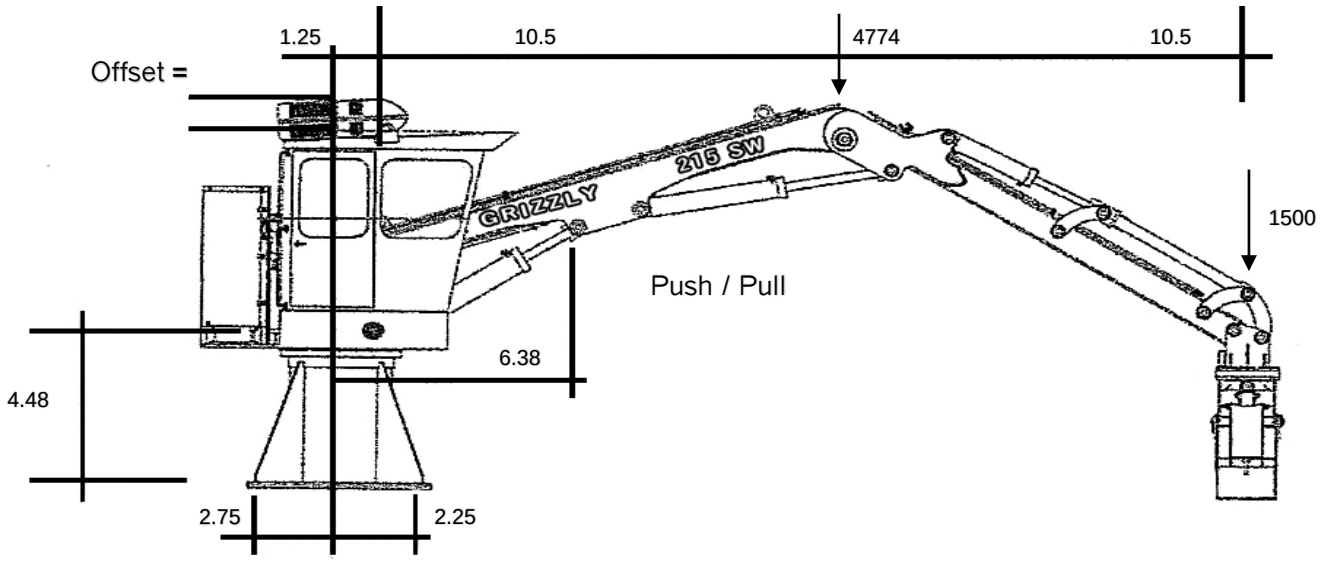
Certified Grizzly Knuckleboom Cranes

Model 215 SW, 21 ft. Boom, 5 ft. Base, 7 in. Cylinder



7 ” Diameter Main Cylinder	Push = Area x pressure =	86,590 lbs.
2250 psi Hydraulic Pressure	Pull = (A1-A2) x pressure =	70,686 lbs.
21 ’ Boom		
3332 Wt. of Boom & Jib	Push = Sin13° =	19,479 lbs.
1442 Wt. Misc.	Push = Cos13° =	84,371 lbs.
5 ‘ Base Plate	Pull = Sin13° =	15,901 lbs.
3 “ Diameter Rod	Pull = Cos13° =	68,874 lbs.
13 ° Angle of Main Cylinder		

Net Pick
= (6.38 x 19479 + 11/12 x 84371 – 10.5 x 4774 – 21 x 1500) / 21= 5,714 lbs.
Moment =
= 10.5 x 4774 + 21 x (5714 +1500) = 201,613 ft. lbs.
Reaction B =
= ((10.5 – 2.25) x 4774 + (21 – 2.25) x (5714 + 1500)) / 5 = 34,928 lbs.
Reaction A =
= 34928 + 4774 + 5714 +1500 = 46,916 lbs.

Net Push
= (6.38 x 15901 + 11/12 x 68874 + 10.5 x 4774 + 21 x 1500) / 21 = 11,724 lbs.
Moment =
= (10.5 x 4774 + (21 – 6.38) x 15901 – 11 x 68874 / 12) / 21 = 10,451 ft. lbs.
Reaction B =
= (2.75 x 10451 – 4 x 15901 + 4.48 x 68874) / 5 = 54,739 lbs.
Reaction A =
= 54739 + 15901 – 10451 = 60,188 lbs.

Moment =
= 4.48 x 68874 – 1.25 x 15901 = 288,680 ft. lbs.

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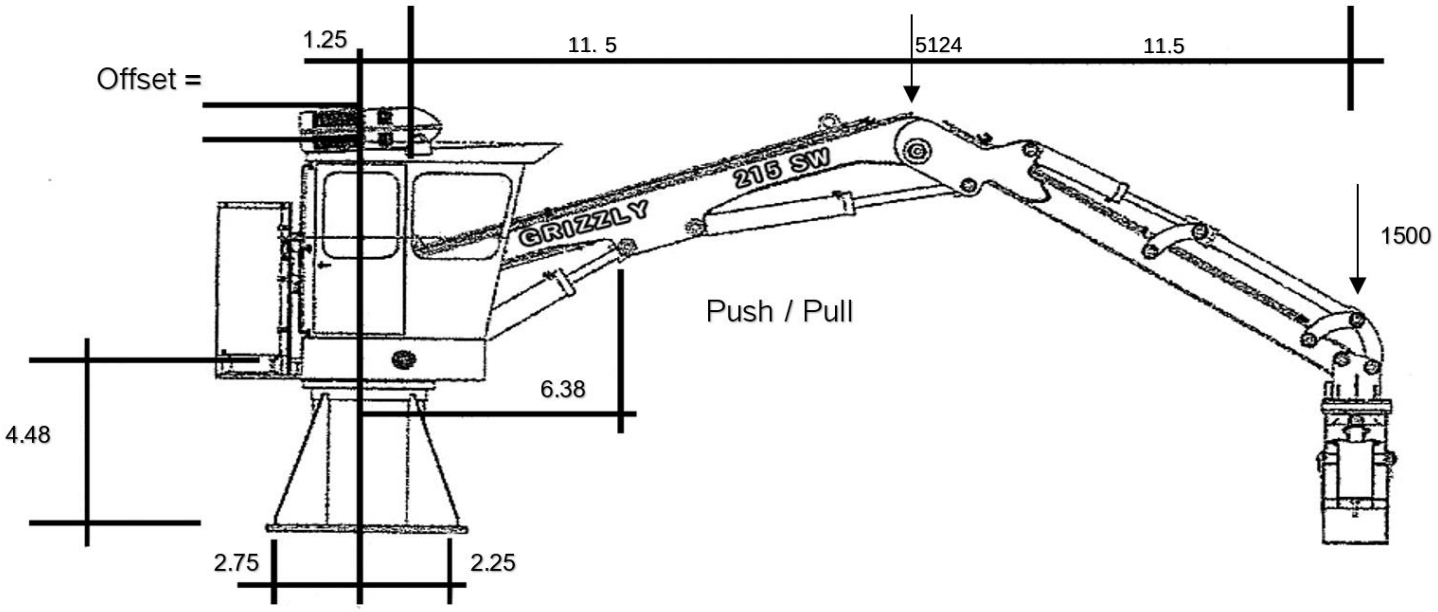
Certify Grizzly Knuckleboom Cranes

Model 215 SW, 23 ft. Boom, 5 ft. Base, 7 in. Cylinder



7 ” Diameter Main Cylinder	Push = Area x pressure =	86,590 lbs.
2250 psi Hydraulic Pressure	Pull = (A1-A2) x pressure =	70,686 lbs.
23 ’ Boom		
3682 Wt. of Boom & Jib	Push = Sin13° =	19,479 lbs.
1442 Wt. Misc.	Push = Cos13° =	84,371 lbs.
5 ‘ Base Plate	Pull = Sin13° =	15,901 lbs.
3 “ Diameter Rod	Pull = Cos13° =	68,874 lbs.
13 ° Angle of Main Cylinder		

Net Pick
= (6.38 x 19479 + 11/12 x 84371 – 11.5 x 5124 – 23 x 1500) / 23 = 4,704 lbs.
Moment =
= 11.5 x 5124 + 23 x (4704 + 1500) = 201,613 ft. lbs.
Reaction B =
= ((11.5 – 2.25) x 5124 + (23 – 2.25) x (4704 + 1500)) / 5 = 35,225 lbs.
Reaction A =
= 35225 + 5124 + 4704 +1500 = 46,553 lbs.

Net Push
= (6.38 x 15901 + 11/12 x 68874 + 11.5 x 5124 + 23 x 1500) / 23 = 11,218 lbs.
Moment =
= (11.5 x 5124 + (23 – 6.38) x 15901 – 11 x 68874 / 12) / 23 = 11,307 ft. lbs.
Reaction B =
= (2.75 x 11307 – 4 x 15901 + 4.48 x 68874) / 5 = 55,209 lbs.
Reaction A =
= 55209 + 15901 – 11307 = 59,803 lbs.

Moment =
= 4.48 x 68874 – 1.25 x 15901 = 288,680 ft. lbs.

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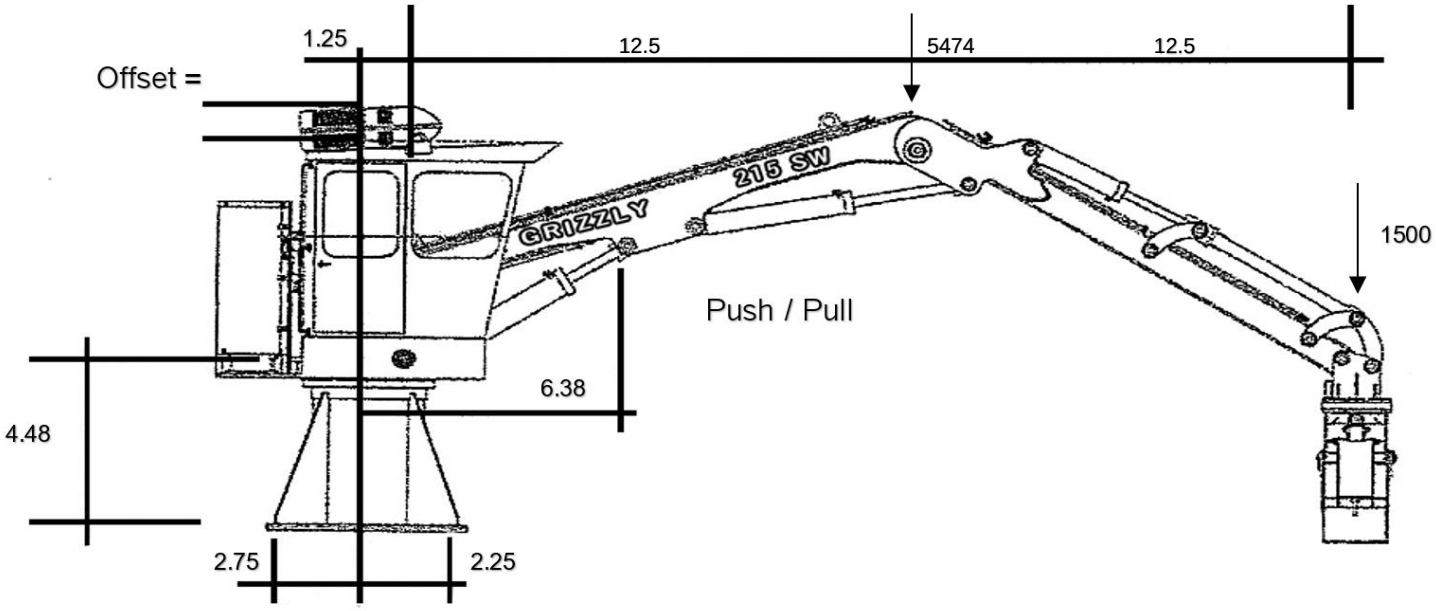
Certify Grizzly Knuckleboom Cranes

Model 215 SW, 25 ft. Boom, 5 ft. Base, 7 in. Cylinder



7 ” Diameter Main Cylinder	Push = Area x pressure =	86,590 lbs.
2250 psi Hydraulic Pressure	Pull = (A1-A2) x pressure =	70,686 lbs.
25 ’ Boom		
4032 Wt. of Boom & Jib	Push = Sin13° =	19,479 lbs.
1442 Wt. Misc.	Push = Cos13° =	84,371 lbs.
5 ‘ Base Plate	Pull = Sin13° =	15,901 lbs.
3 “ Diameter Rod	Pull = Cos13° =	68,874 lbs.
13 ° Angle of Main Cylinder		

Net Pick
= (6.38 x 19479 + 11/12 x 84371 – 12.5 x 5474 – 25 x 1500) / 25 = 3,828 lbs.
Moment =
= 12.5 x 5474 + 25 x (3828 + 1500) = 201,613 ft. lbs.
Reaction B =
= ((12.5 – 2.25) x 5474 + (25 – 2.25) x (3828 + 1500)) / 5 = 35,462 lbs.
Reaction A =
= 35462 + 5474 + 3828 + 1500 = 46,263 lbs.

Net Push
= (6.38 x 15901 + 11/12 x 68874 + 12.5 x 5474 + 25 x 1500) / 25 = 10,820 lbs.
Moment =
= (12.5 x 5474 + (25 – 6.38) x 15901 – 11 x 68874 / 12) / 25 = 12,055 ft. lbs.
Reaction B =
= (2.75 x 12055 – 4 x 15901 + 4.48 x 68874) / 5 = 55,621 lbs.
Reaction A =
= 55621 + 15901 – 12055 = 59,467 lbs.

Moment =
= 4.48 x 68874 – 1.25 x 15901 = 288,680 ft. lbs.

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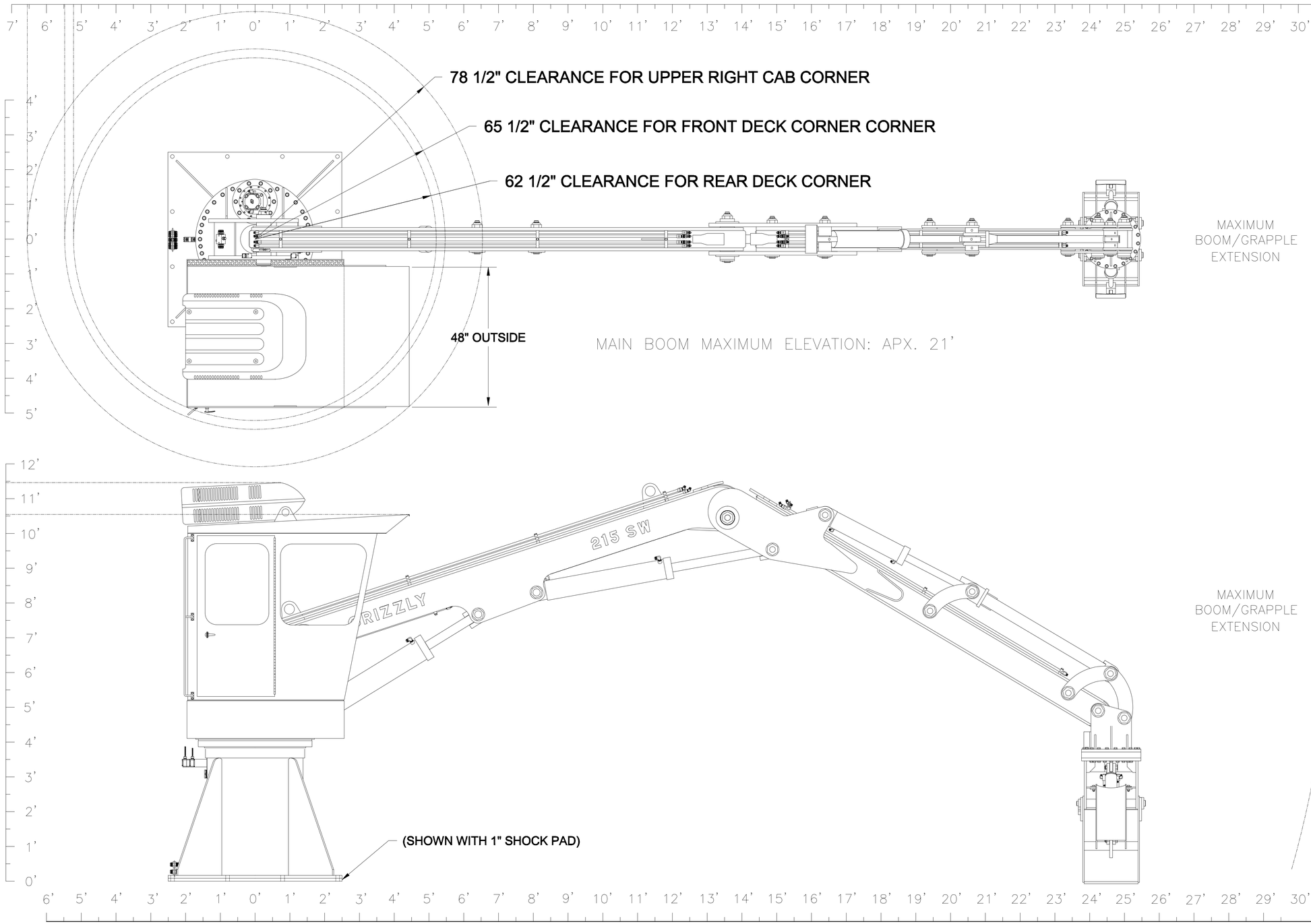
Certified Grizzly Knuckleboom Cranes

Model	215 SW	215 SW	215 SW
Boom Length (ft.)	21	23	25
Base Plate (ft.)	5	5	5
Main Cylinder (in.)	7	7	7
Hydraulic Pressure (psi)	2,250	2,250	2,250
Boom / Misc. Wt. (lbs.)	4,774	5,124	5,474
Grapple Weight (lbs.)	1,500	1,500	1,500
Angle of Main Cylinder (°)	13	13	13
Net Lift (lbs.)	5,714	4,704	3,828
Net Push (lbs.)	11,724	11,218	10,820
Moment (ft. lbs.)	288,680	288,680	288,680
Base Uplift (lbs.)	60,188	59,803	59,467
Base Down Pressure (lbs.)	54,739	55,209	55,621
Bolt Tension / Bolt (lbs.)	10,533	10,466	10,407
Bolt Shear / Bolt (lbs.)	2,680	2,680	2,680
Base Torque (ft. lbs)	76,389	76,389	76,389

Manufacturers of "GRIZZLY" Knuckleboom Cranes

Since 1977

Weights Certified by SSW Engineers



PROJECT:
GRIZZLY 215SW COMPACTOR WITH:
25' BOOM
48" WIDE CAB
REMOTE POWER PACK
SOLID WASTE COMPACTOR GRAPPLE

"GRIZZLY"
KNUCKLE BOOM CRANES

CRANE EQUIPMENT MFG.
33740 Seavey Loop
Eugene, Oregon 97405
(541) 748-9681

SCALE: 1=30
DWG: 0227

GRIZZLY KNUCKLEBOOM CRANES
CRANE EQUIPMENT MFG.

TOLERANCES (EXCEPT AS NOTED)	MATERIAL: N/A	SCALE 1=30	DRAWN BY J.MAKINSON
DECIMAL .010			APPROVED BY
FRACTIONAL 1/16	TITLE 215 S.W. W/48" CAB		
ANGULAR 0°30'	DATE 10/18/06	DRAWING NUMBER 0227-A-48 R5	

Grizzly 215 SW Stationary SW Knuckleboom Crane Specifications

I. SCOPE

We will furnish one (1) electrically powered stationary knuckleboom crane complete with frame, boom, base, grapple, electric motor, hydraulic system, controls, and anchor bolts (if standard), together with accessories normally required for proper operation. Knuckleboom will be Grizzly 215SW Solid Waste Crane, hereafter referred to as "crane"

II. POWER SUPPLY

Power to crane will be 460 volts, three-phase, 60 Hz. The electrical box mounted to the crane power supply will be protected with a 150 amp breaker. The electric/hydraulic power pack will be located on a separate, remote 49" x 77" platform.

III. MOUNTING PLATE

The mounting plate will be a minimum of 5' x 5' x 1" heavy-duty steel. No position of the crane or its accessories will extend more than 80" behind the centerline of rotation of the crane. Base plate will be mounted on shock-absorbing cushion.

IV. PAINTING

All exposed surfaces of crane will be factory primed and painted with a minimum of two coats of paint. Surface preparation and painting will be per the paint manufacturer's recommendations.

V. EASE OF MAINTENANCE

Design of crane will permit ease of access for removal and replacement of components for service and adjustment with minimum disturbance to other elements. Cab is provided and will have removable covers on the sides of the deck and a door in the top of the deck for ready access to parts beneath cab-deck.

VI. CONDITIONS OF SERVICE

The articulated crane will be hydraulically operated, electrically powered, with a solid waste grapple. Crane will be of integral heavy duty construction, complete with operating accessories customarily furnished with cranes of this type, together with modifications and optional attachments as specified.

VII. CONSTRUCTION AND SPECIFICATIONS

A. FRAME AND BASE

Crane frame and base will be fabricated steel, reinforced and designed to withstand the maximum stress normally imposed in heavy duty solid waste crane operations.

B. SPECIFICATIONS (subject to change with optional modifications)

Compaction/Downforce	5000 lbs. minimum at full extension
Operating Pressure	2250 psi
Lift Capacity Rating	21,500 lbs. at 8’ maximum
Mast Dimensions	33” dia. X 48” x 1/2” wall
Overall Boom Length	25’1” standard
Below Ground Level Reach	13’ maximum standard
Ceiling Clearance	21’ approximately. (consult factory when this is a factor)
Boom Material	6” x 10” x 1/2"
Grapple	1/3 cubic yard solid waste type with wristing cylinder and compacting gate
Grapple Weight	1,800 lbs. approximately
Main Cylinder	1 of 7” x 37.5” w/3” rod diameter
Jib Cylinder	1 of 6” x 36” w/3” rod diameter
Grapple Cylinder	2 of 3.5” x 8” w/1.5” rod diameter
Wristing Cylinder	1 of 5” x 20” w/2.5” rod diameter
Main Valve	Stack Type
Hydraulic Pump	Triple, 23/23/18 gpm
Main Bearing	39” diameter internal gear (weld-on type)
Electric Motor	50 hp., 460v, 3-phase 60 Hz.
Swing System	Commercial Intertech drive
Gear Box	motor, Fairfield S-3A planetary

Swing Speed	Variable to 3 rpm
Swing Torque	6,250 ft. lbs.
Mast Rotation	capable of 360 degrees, non-continuous
Motor Starter	Combination, with 150-amp circuit breaker, base mounted
Accumulator	Two (2) nitrogen-filled, main and jib circuits
Hydraulic Tank	125-gallon capacity with low oil shut off
Hydraulic Oil Cooler	Sized to fit hydraulic system flow with over pressurization safe guard
Filtration System	2 return-line filters, 3 suction filters
Power Control Switch	Off/On, mounted at controls
Tank Gauges	Hydraulic fluid level/temperature
Controls	Dual hydraulic remote controls for main/jib swing and wristing, --separate electric rocker switches on handles for grapple orbit/and open and close functions
Mounting Plate	To fit existing bolt pattern without alterations to building structures
Paint	Two coats (minimum) of synthetic enamel
Embeds	Use existing (to be supplied for new foundation)

C. BOOM

The crane will be furnished with a straight articulating boom. The boom will be of all-welded steel construction, with replaceable bushings.

Head, knuckle, and wristing pins will be a minimum of 2 ½" diameter. The head bolt bushing retainer will be reinforced 1 ¾" on each side. The cylinder pin side plates will be 1" on each side. The knuckle pin boss will have 1 ¼" reinforcement on each side. All pins will be retained by nuts with a minimum of 2" thread diameter, capable of being locked to the pin to prevent loosening. Boom shall have a minimum of ½" reinforcing plates on both sides.

The boom will be connected to the bearing plate by two head ears 1 ¼" thick, recessed into the bearing plate. The bearing plate will be 1 ½" thick.

D. ELECTIC MOTOR

The crane will be driven by a minimum of a 50 hp, mill-and-chemical type TEFC motor. Motor will be rated at 460 volts, 60 Hz, three-phase.

E. HYDRAULIC SYSTEM

The boom and grapple will be actuated by double-acting hydraulic cylinders with chrome-plated piston rods. The hydraulic pump will provide ample gallons per minute to meet minimum lift and compaction requirements, as specified. The hydraulic pump is designed so that more than two crane functions can be used simultaneously without reducing power to the functions. Ample hydraulic circuit and reservoir capacity will be furnished for sustained fast operation cycles without overheating. An efficient oil filtering system will be provided, with filter elements readily accessible for removal and replacement. Hydraulic oil level will be readily accessible for examination and maintenance. If the oil level drops below a predetermined level, a sensor will turn the pump off electrically. Optional tank heater available for colder climates.

F. SWING SYSTEM

The system will meet the minimum swing speed requirements. It will be independent of the main system and capable of 360 degree, non-continuous rotation.

G. GRAPPLE

The grapple will be of heavy duty, all-welded construction and capable of picking and compacting refuse. The minimum volume capacity of the grapple will be 1/3 cu. yd.

Hoses and fittings will be protected from snagging and breaking. Grapple shall rotate continuously using a minimum of 20" diameter Rotek or equivalent bearing and a pinion on a torque motor that is bolted in place with a minimum of 4 bolts. Grapple shall contain a hydraulic manifold/swivel to allow continuous rotation of grapple.

H. OPERATOR'S CAB AND SEAT

The operator's cab will allow visibility in all directions for the operator. Glass used will be safety automobile-type glass. The operator's seat will be adjustable in relation to the controls. Cab will have a 110 volt air conditioning and heating system, if this option is selected. Customer to provide platform/steps to enter into cab.

I. CONTROLS

Dual manual controls to operate main, jib, wristing and swing. Two additional handles to orbit and open/close the grapple. These controls manually operate the main control valve.

I. ANCHOR BOLTS

NOTE: It shall be the customer's responsibility to ensure that the foundation and anchor bolt design and requirements are certified by a structural engineer prior to the shipping and installation of the anchor bolts. If the "standard" anchor bolts are considered to be insufficient the customer's structural engineer must notify Crane Equipment Mfg. Corp. with the appropriate design, ratings and specifications per application. This must be certified and documented (signed and dated) by the customer and their structural engineer, before being supplied with the anchor bolts for said design. Crane Equipment Mfg. Corp. is not responsible for the design or specifications for the foundation and/or anchor bolts. Any drawings and/or information supplied in such designs and specifications are FOR REFERENCE ONLY.

Crane Equipment Mfg. Corp. Is not a structural engineering company nor have we ever been.

J. TESTING

Crane will be factory tested for a minimum of four hours prior to shipping.

VIII. INSTRUCTION MANUALS

Crane Equipment Mfg. Corp. will furnish detailed parts lists; installation, operation and maintenance instructions; and schematic drawings of hydraulic and electrical controls.

PLEASE NOTE

If you are using the above information to establish specifications for a bid by a General Contractor, you may wish to add something similar to the following in the bid requirements:

"The Contractor shall be required to demonstrate that an alternative crane manufacturer will meet or exceed these minimum requirements. The Contractor shall also be responsible for any and all costs associated in demonstrating that the crane foundation as designed will be adequate for an alternate crane if one is chosen by the Contractor. Also, the Contractor shall be responsible for all costs associated with foundation design changes if determined necessary to accommodate an alternative crane."

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Machine Pricing for Grizzly 215 SW Solid Waste Crane
For Budgeting Purposes Only

215 SW Stationary Solid Waste Machine	Prices
Base Machine w/remote power pack and 30” wide cab, standard controls	$158,000.00

Options

Power Above	No Charge
Start-up assistance (depending on geographic location)	$2,500.00 - $4,900.00
Air Conditioning (marine type or through the wall type)	$3,900.00
Cab Heater (floor mount)	$700.00
Swing Stops	$2,500.00
Tank Heater	$1,250.00
40” or 48” Wide Cab w/ Split Controls	$4,900.00
Left-Hand Cab on Machine	No Charge
Remote Operator Station	No Charge
Electric Controls	$24,000.00
Electric/Hydraulic Controls	$20,000.00
Continuous Mast Rotation (hydraulic & electrical)	$10,956.00
Cab Ladder (for 48” mast height)	$2,725.00
Special Grapples	Priced Per Order
Spare Parts	Priced Per Order
Front Cab Window Guard	$850.00
All Window Guards	$3,400.00
75 Horse Power Electric Motor	$4,200.00
Shipping & Handling	To be determined

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Standard 215 SW Grizzly Crane
Product Warranty

Crane Equipment Mfg. Corp. warrants its products to be free from defects in material and/or workmanship under normal in-service use for a period of six (6) months after being placed in use, or within one (1) year from date of shipment from its factory, whichever occurs first. Within the warranty period, the Crane Equipment Mfg. Corp. will replace, F.O.B. its factory, or allow credit at its current price, for any part that shall be proved defective to the satisfaction of the Crane Equipment Mfg. Corp. All parts claimed to be defective must be properly identified and returned to the Crane Equipment Mfg. Corp.'s factory, all charges prepaid. This policy makes no allowance for freight, travel or labor expenses.

This warranty is expressly in lieu of any other warranties, expressed or implied, including any implied warranty or merchantability or fitness for a specific purpose and of any other obligations or liabilities on the part of the Crane Equipment Mfg. Corp. No one is authorized to assume for or on behalf of the Crane Equipment Mfg. Corp., any different or additional obligations in connection with the product. The Crane Equipment Mfg. Corp.'s liability under this warranty is limited to treatment of parts set forth in preceding paragraph; all other liabilities expressed or implied arising under statute, through neglect or otherwise, are hereby expressly waived.

This warranty covers only new equipment in the same possession of the original owner, which, after shipment from the factory, has not been manufactured upon, altered or treated in any manner whatsoever without the written consent of the Crane Equipment Mfg. Corp. No claims will be honored for a unit that has been abused or misused or operated under conditions other than those specified by the Crane Equipment Mfg. Corp..

Pumps, valves, air conditioners, electrical components and similar equipment not manufactured by the Crane Equipment Mfg. Corp. are covered only by the standard warranty of the respective manufacturer, and such items are not warranted by the Crane Equipment Mfg. Corp..

CRANE EQUIPMENT MANUFACTURING CORP.

33740 Seavey Loop • Eugene OR 97405-9602

www.grizzlycranes.com • ☎ (541) 746 – 9681 • 🖷 (541) 746-8928

Summary Comparison of a Backhoe vs. a Crane

A. A backhoe with diesel engines adds more noise and fumes to a building and/or area already, uncomfortable with the chocking pollution of trucks. The clean, smooth, and quiet operating hydraulic system of our cranes are much more appeasing and does the job in the clean, environmentally-friendly, and safe operating theme the public has come to demand.

B. Backhoes typically have large rubber wheels that are likely to damage during operations and much more expensive to replace. Our cranes are stationary and do not require replacement of tires, creating a more cost effective piece of heavy equipment.

C. Backhoes are typically mobile. At first it seems like an advantage until you consider they can also become unsafe and inefficient, blocking the flow of truck traffic, and have had a history of being driven into walls and trailer openings. Cranes once again can be mounted to a mobile truck, where the truck can park in a safe place and the crane will reach as long as its boom will allow it (21'-28'), or more commonly used; it can be stationary, mounted in a safe and convenient place.

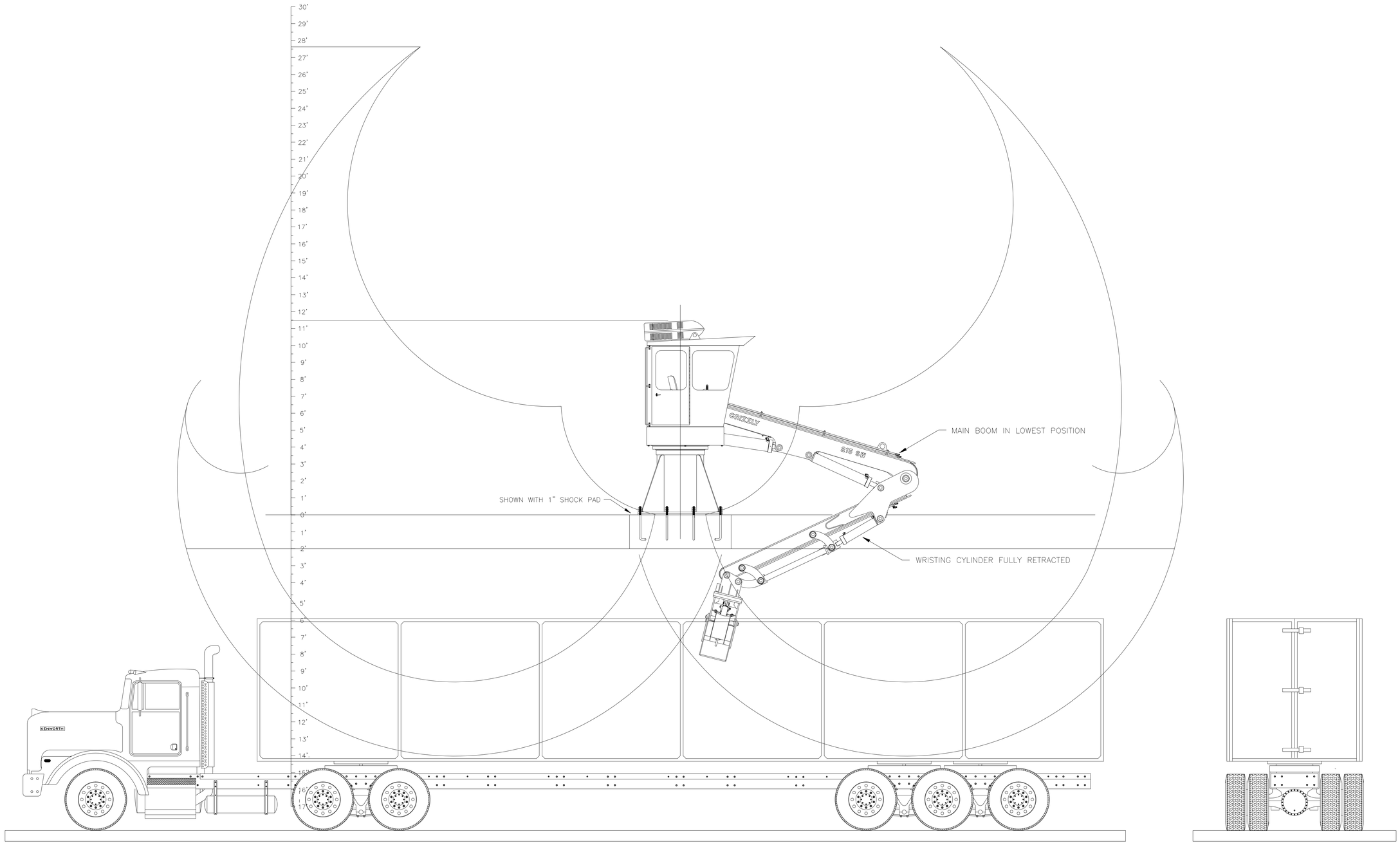
D. Availability on backhoes can be limited unless you plan one piece of equipment for each floor opening. You don't want transfer trucks waiting on an available back hoe. Doing this is not cost affective and having a crane for each floor is actually more affordable in the long run.

E. Direct dumping from the collection truck into the open trailer requires more compaction time and effort. A backhoe can do some rearranging but does not have the stability, flexibility, or maneuverability of our stationary knuckleboom cranes have. It is also not efficient to raise and lower the backhoe's outriggers each and every time it is moved.

F. It is difficult for a backhoe to retrieve something from the transfer trailer when an undesirable object is dumped or bridged, and/or when a truck becomes overloaded. Our cranes are built for these problems to easily and efficiently move and remove any types of items with accuracy.

G. The stationary crane gives you efficient, quick completion of trailer loading, which permits building of the minimum dump openings for the planned volume of the facility and reduced construction expenses.

H. A stationary crane has a specially built knuckle that is more forgiving side to side movements loads while the backhoe is extremely limited to its flexibility and movability.


30'
29'
28'
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26'
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22'
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19'
18'
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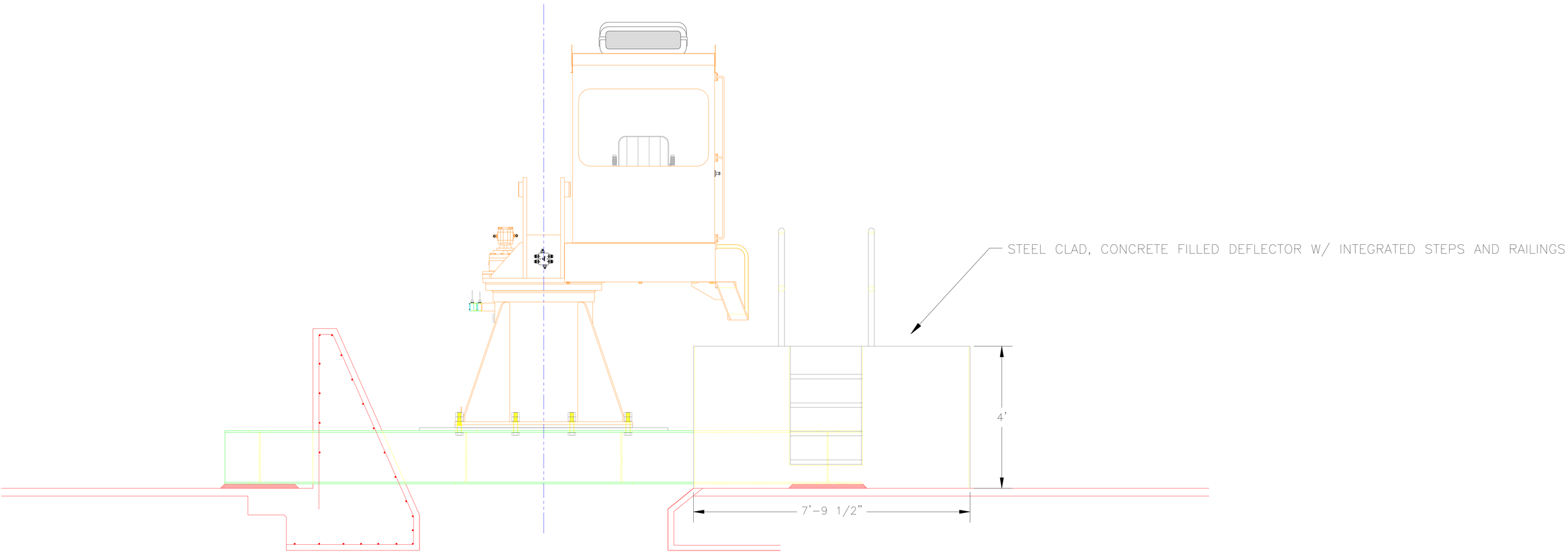
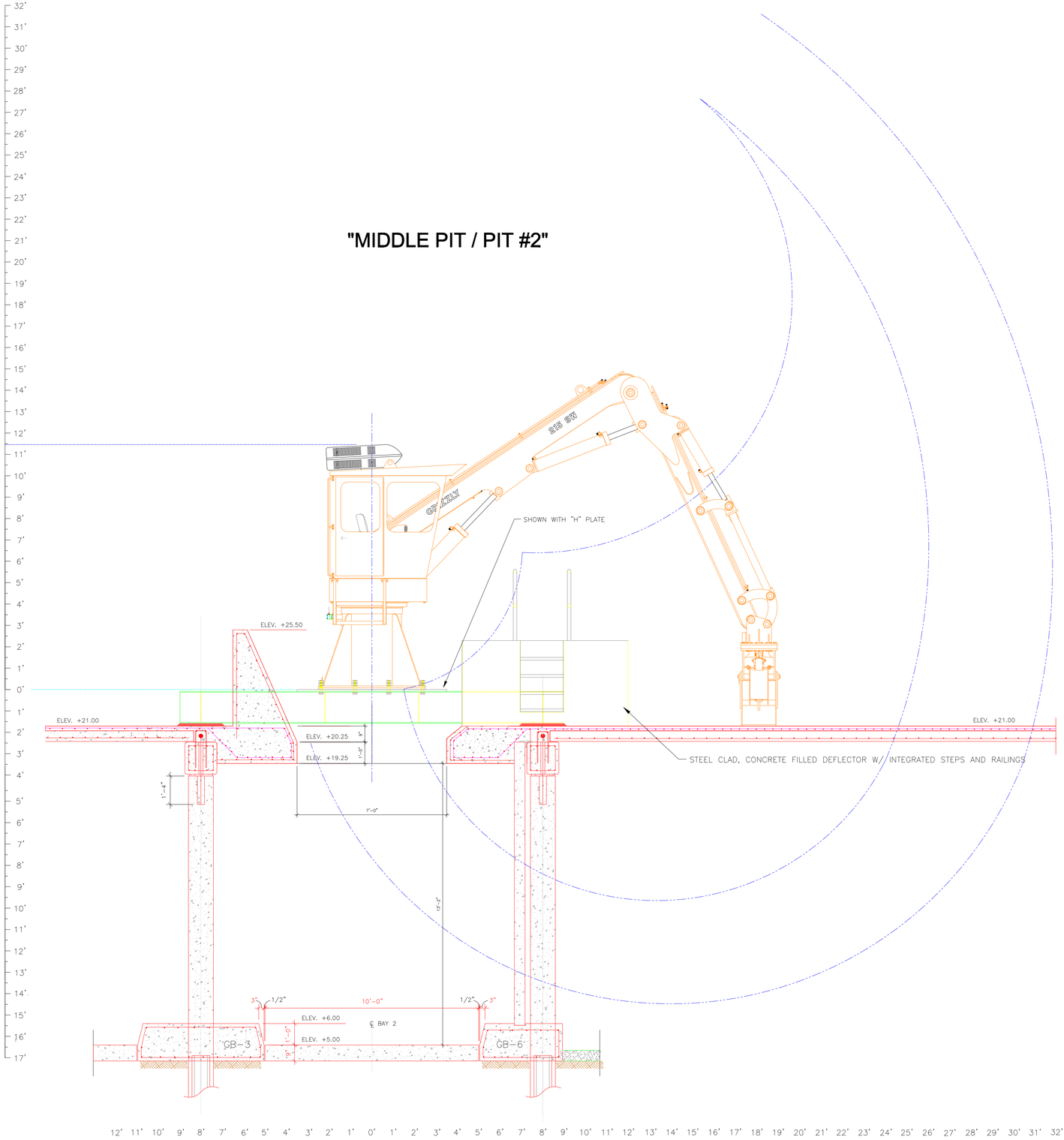
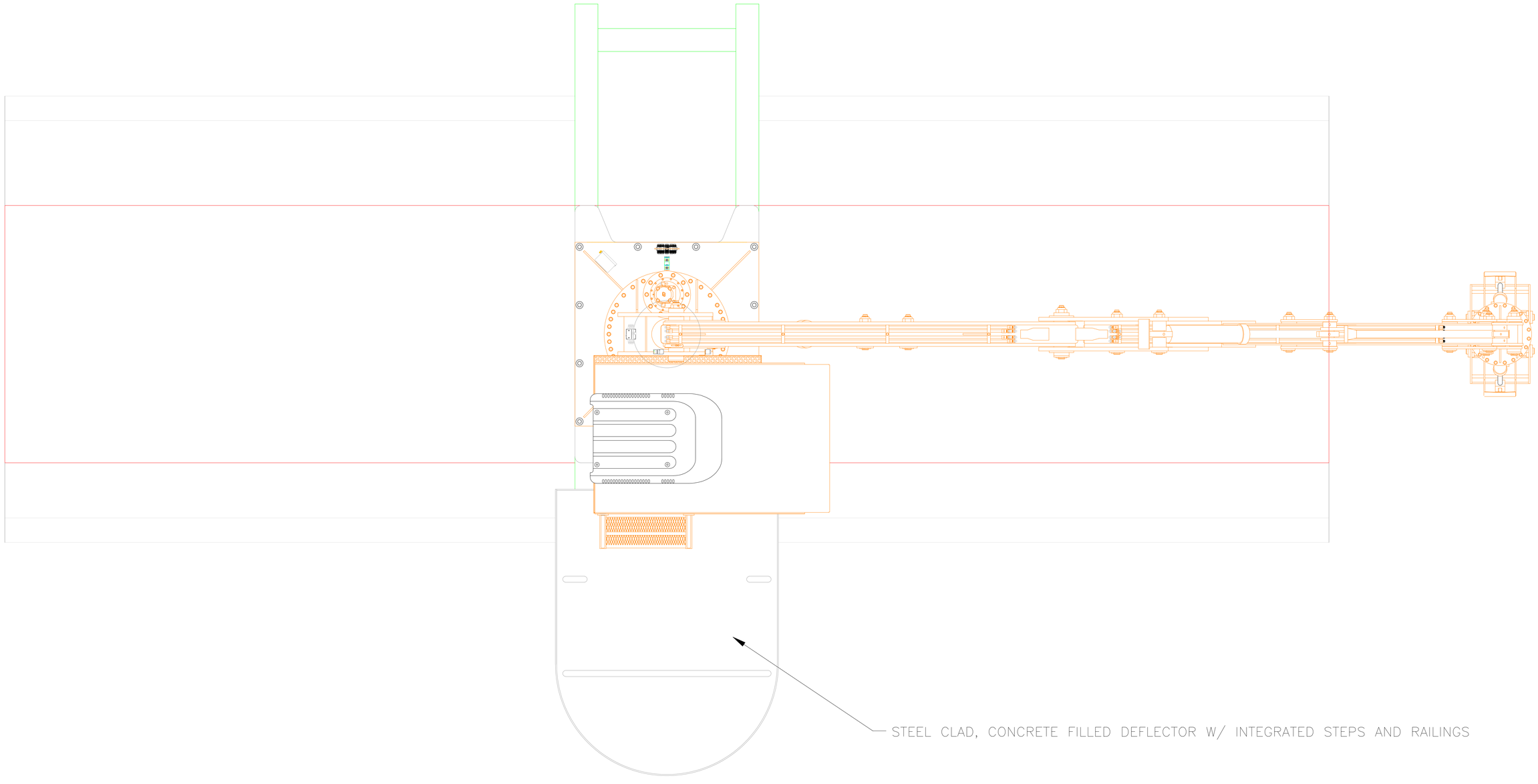
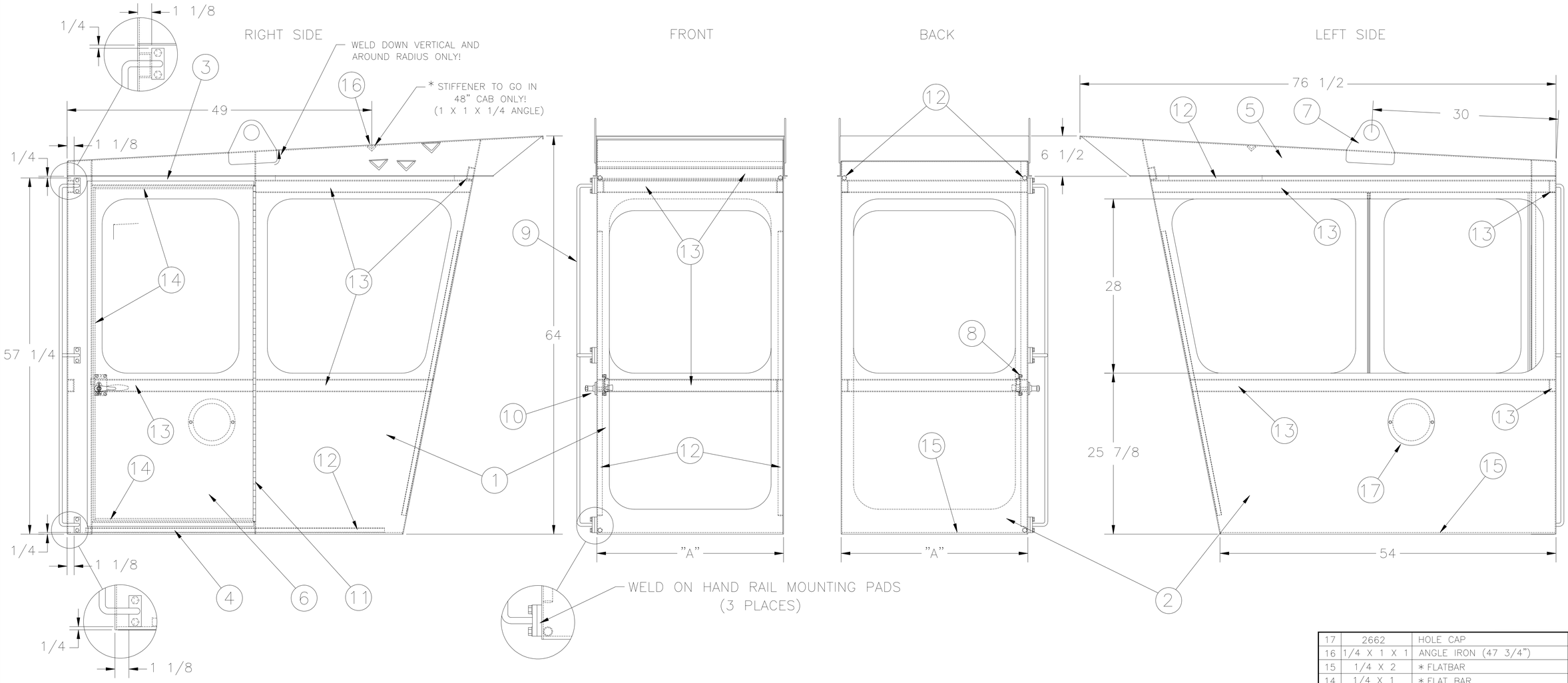
8'
9'
10'
11'
12'
13'
14'
15'
16'
17'
GRIZZLY
215 SW
MAIN BOOM IN LOWEST POSITION
SHOWN WITH 1" SHOCK PAD
WRISTING CYLINDER FULLY RETRACTED
KENWORTH


STEEL CLAD, CONCRETE FILLED DEFLECTOR W/ INTEGRATED STEPS AND RAILINGS
4'
7'-9 1/2"

"MIDDLE PIT / PIT #2"




STEEL CLAD, CONCRETE FILLED DEFLECTOR W/ INTEGRATED STEPS AND RAILINGS



NOTES:

1. DIMENSIONS ARE FINISHED DIMENSIONS
2. ADD STIFFENERS AND SUPPORTS AS SHOWN
3. DO NOT GRIND WELDS OR ANY EXTERIOR SURFACE OF CAB!!
4. REMOVE ALL WELDING SPLATTER, SPRAY AND "BERRIES" FROM CAB INTERIOR WITH WIRE BRUSH/WHEEL ONLY!
5. INSTALL DOOR LATCH AS REQUIRED
6. SAND BLAST ALL ANGLE IRON AND FLAT BAR BEFORE WELDING IN PLACE

GLASS REQUIREMENTS:

1. USE TINTED AUTOMOTIVE SAFETY GLASS
2. SLIDING WINDOW ON LEFT, FRONT, OUTSIDE

CARPETING:

1. CARPET ALL SIDES BELOW CHANNEL IRON, INCLUDING DOOR
2. CARPET INSIDE TOP COMPLETELY

DIMENSION VARIABLES:

DIMENSION "A":

30" CAB	DIM."A" = 30"
40" CAB	DIM."A" = 40"
48" CAB	DIM."A" = 48"

* SEE SPECIFIC ASSEMBLY DWGS. FOR SPECIFIC DIMENSIONS, MATERIALS AND QUANTITIES.

ITEM	PART NO.	DESCRIPTION	QTY.
17	2662	HOLE CAP	1
16	1/4 X 1 X 1	ANGLE IRON (47 3/4")	1
15	1/4 X 2	* FLATBAR	*
14	1/4 X 1	* FLAT BAR	*
13	1/8 X 1 X 2	* CHANNEL IRON	*
12	#500SEC	* 1/2" STEEL CONDUIT	*
11	323	HINGE (ALLEGIA CORP.)	1
10	20072/55RH	LATCH/HANDLE	1
9	7633	HAND RAIL	1
8	2661	LATCH PAD	1
7	2660	LIFTING EYE	1
6	2561-1	DOOR	1
5	2560	TOP	1
4	2561-3	DOOR SUPPORT (LOWER)	1
3	2561-2	DOOR SUPPORT (UPPER)	1
2	2559	LEFT SIDE/REAR	1
1	2557	RIGHT SIDE/FRONT	1

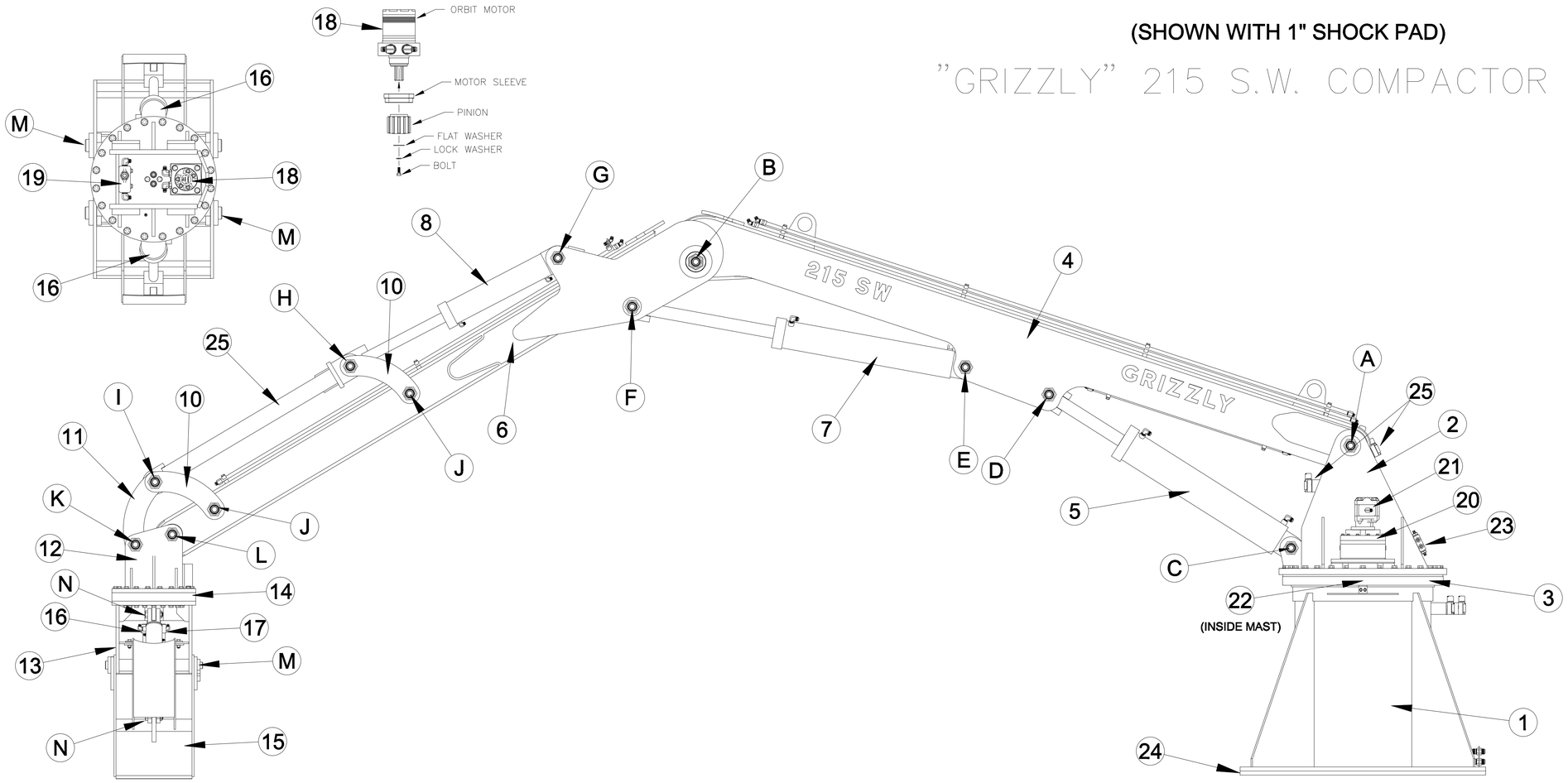
GRIZZLY KNUCKLEBOOM CRANES

CRANE EQUIPMENT MFG.

TOLERANCES (EXCEPT AS NOTED)			
DECIMAL ± .010	MATERIAL: NOTED	SCALE 1=8	DRAWN BY J.MAKINSON
			APPROVED BY
FRACTIONAL ± 1/16	TITLE: SOLID WASTE CAB		
ANGULAR ± 0°30'	DATE 7/10/12	DRAWING NUMBER 7413 R21	

(SHOWN WITH 1" SHOCK PAD)

"GRIZZLY" 215 S.W. COMPACTOR

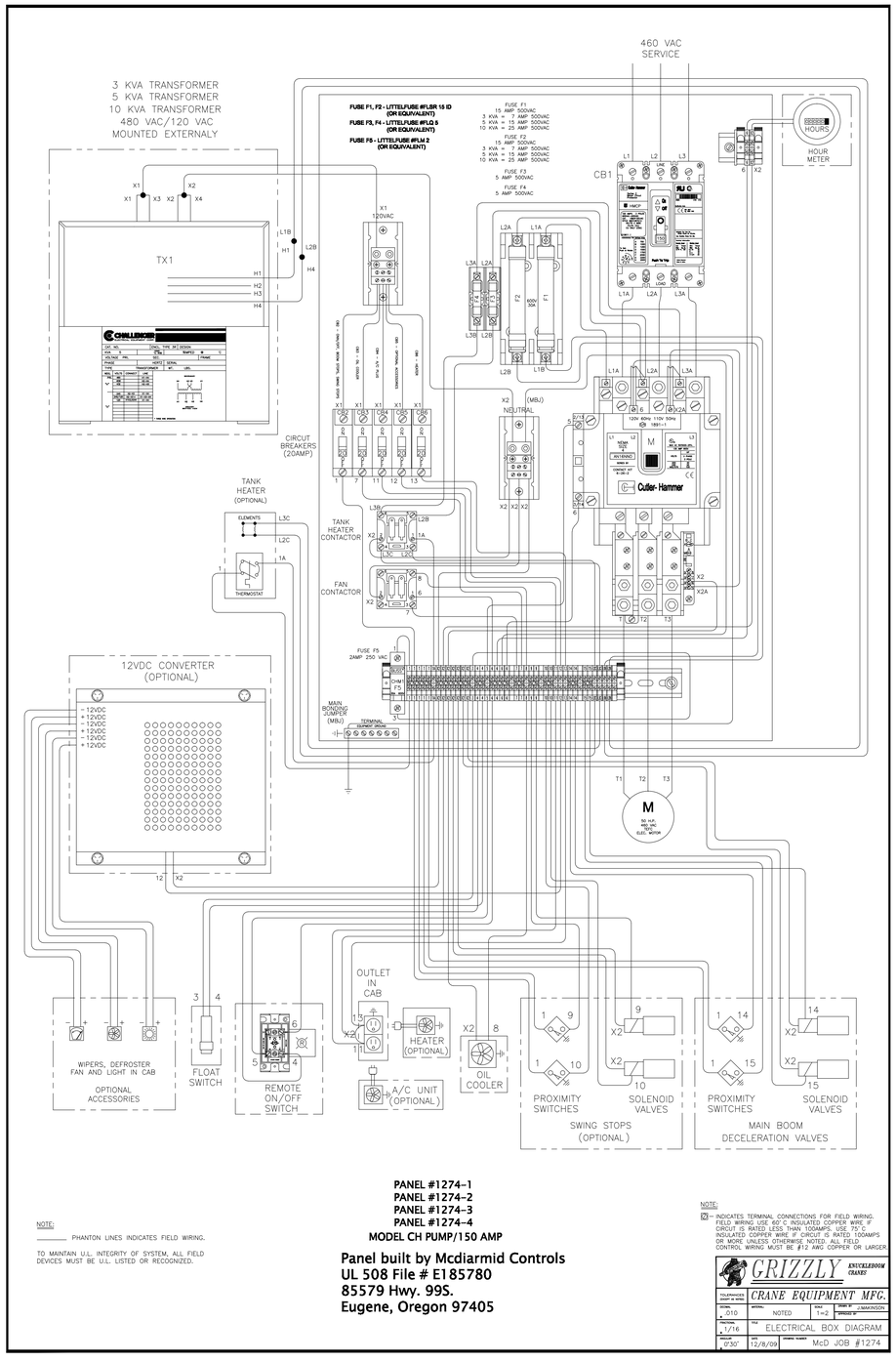


PIN LIST:

- A - HEAD PIN (1X)
- B - KNUCKLE PIN (1X)
- C - MAIN CYL BUTT PIN (1X)
- D - MAIN CYL ROD PIN (1X)
- E - JIB CYL BUTT PIN (1X)
- F - JIB CYL ROD PIN (1X)
- G - WRISTING CYL BUTT PIN (1X)
- H - WRISTING CYL ROD PIN (1X)
- I - WRISTING LINKAGE PIN (2X)
- J - WRISTING LINKAGE PIN W/Z (2X)
- K - GRAPPLE TO WRISTING PIN (1X)
- L - GRAPPLE TO BOOM PIN W/Z (1X)
- M - GRAPPLE ARM PIN (2X)
- N - GRAPPLE CYL BOLT (4X)

COMPONENT LIST:

1 - MAST
2 - HEAD ASSEMBLY
3 - MAIN BEARING
4 - MAIN BOOM
5 - MAIN CYLINDER
6 - JIB BOOM
7 - JIB CYLINDER
8 - WRISTING CYLINDER
9 - WRISTING EXTENSION
10 - WRISTING LINKAGE ARMS
11 - WRISTING/GRAPPLE CONNECTOR
12 - GRAPPLE UPPER HEAD
13 - GRAPPLE LOWER HEAD
14 - GRAPPLE BEARING
15 - GRAPPLE ARM
16 - GRAPPLE CYLINDER
17 - GRAPPLE SWIVEL ASSEMBLY
18 - ORBIT MOTOR ASSEMBLY
19 - ORBIT CUSHION BLOCK
20 - SWING GEAR BOX
21 - SWING MOTOR
22 - SWING PINION
23 - SWING CUSHION BLOCK
24 - RUBBER SHOCK PADS
25 - DECELERATION SENSOR



PANEL #1274-1
PANEL #1274-2
PANEL #1274-3
PANEL #1274-4
MODEL CH PUMP/150 AMP

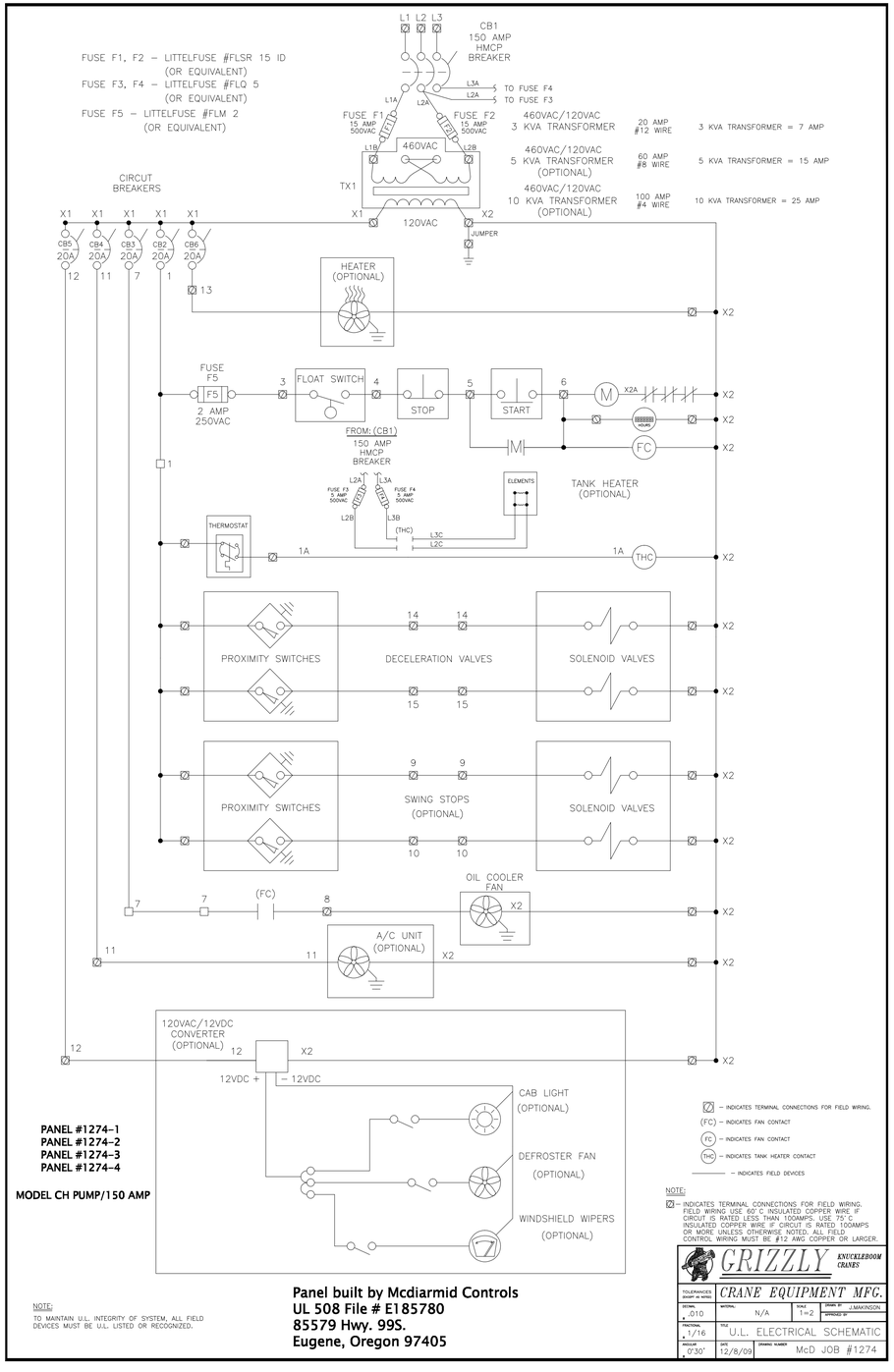
Panel built by Mcdiarmid Controls
UL 508 File # E185780
85579 Hwy. 99S.
Eugene, Oregon 97405

NOTE:
——— PHANTON LINES INDICATES FIELD WIRING.

TO MAINTAIN U.L. INTEGRITY OF SYSTEM, ALL FIELD DEVICES MUST BE U.L. LISTED OR RECOGNIZED.

NOTE:
☑ – INDICATES TERMINAL CONNECTIONS FOR FIELD WIRING. FIELD WIRING USE 60° C INSULATED COPPER WIRE IF CIRCUT IS RATED LESS THAN 100AMPS. USE 75° C INSULATED COPPER WIRE IF CIRCUT IS RATED 100AMPS OR MORE UNLESS OTHERWISE NOTED. ALL FIELD CONTROL WIRING MUST BE #12 AWG COPPER OR LARGER.

GRIZZLY KNUCKLEBOOM CRANES
CRANE EQUIPMENT MFG.
TOLERANCES (EXCEPT AS NOTED)
DECIMAL .010
FRACTIONAL ± 1/16
ANGULAR ± 0°30'
MATERIAL NOTED
SCALE 1=2
DRAWN BY J.MAKINSON
APPROVED BY
TITLE ELECTRICAL BOX DIAGRAM
DATE 12/8/09
DRAWING NUMBER McD JOB #1274



PANEL #1274-1
PANEL #1274-2
PANEL #1274-3
PANEL #1274-4

MODEL CH PUMP/150 AMP

☑ – INDICATES TERMINAL CONNECTIONS FOR FIELD WIRING.
(FC) – INDICATES FAN CONTACT
FC – INDICATES FAN CONTACT
THC – INDICATES TANK HEATER CONTACT
——— – INDICATES FIELD DEVICES

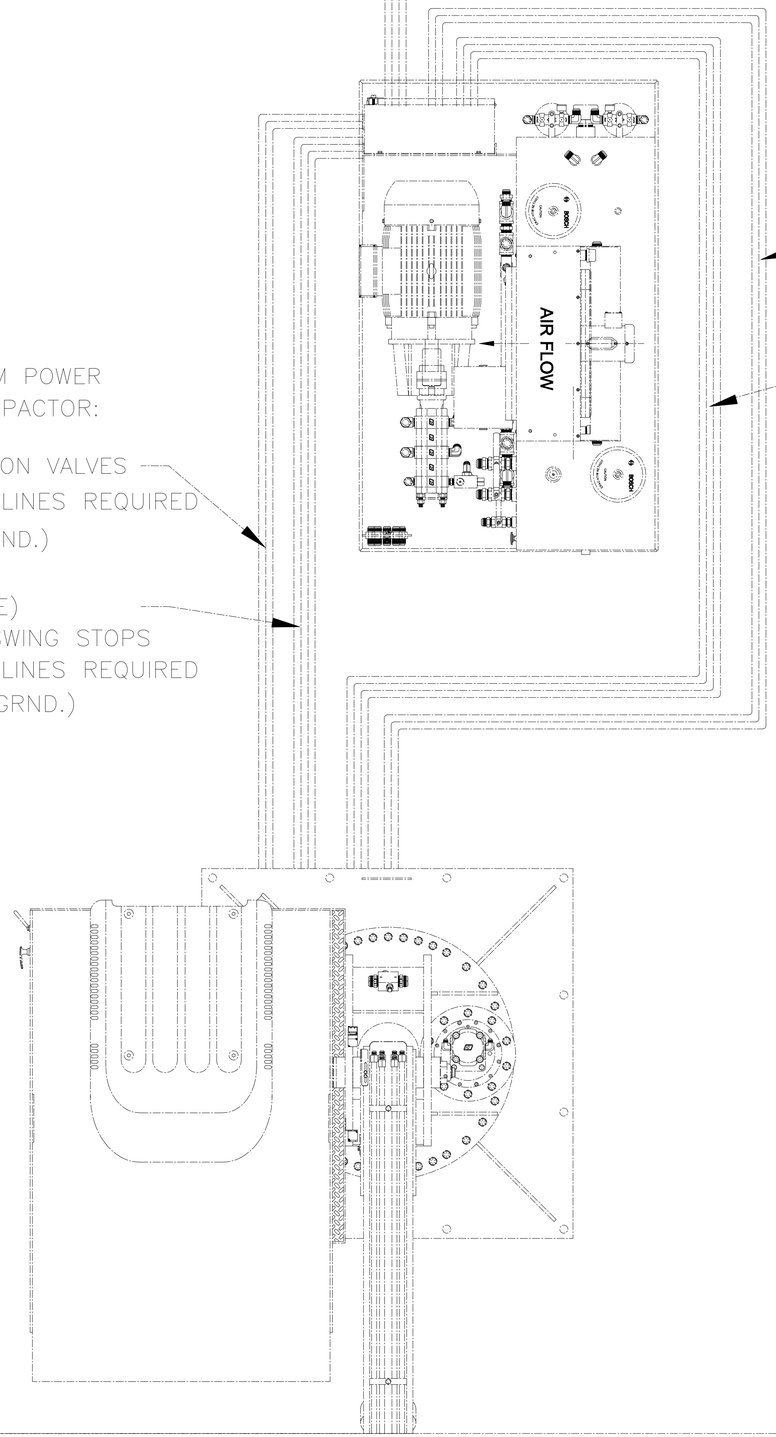
NOTE:
☑ – INDICATES TERMINAL CONNECTIONS FOR FIELD WIRING. FIELD WIRING USE 60° C INSULATED COPPER WIRE IF CIRCUT IS RATED LESS THAN 100AMPS. USE 75° C INSULATED COPPER WIRE IF CIRCUT IS RATED 100AMPS OR MORE UNLESS OTHERWISE NOTED. ALL FIELD CONTROL WIRING MUST BE #12 AWG COPPER OR LARGER.

NOTE:
TO MAINTAIN U.L. INTEGRITY OF SYSTEM, ALL FIELD DEVICES MUST BE U.L. LISTED OR RECOGNIZED.

Panel built by Mcdiarmid Controls
UL 508 File # E185780
85579 Hwy. 99S.
Eugene, Oregon 97405

GRIZZLY KNUCKLEBOOM CRANES
CRANE EQUIPMENT MFG.
TOLERANCES (EXCEPT AS NOTED)
DECIMAL .010
FRACTIONAL ± 1/16
ANGULAR ± 0°30'
MATERIAL N/A
SCALE 1=2
DRAWN BY J.MAKINSON
APPROVED BY
TITLE U.L. ELECTRICAL SCHEMATIC
DATE 12/8/09
DRAWING NUMBER McD JOB #1274

SERVICE LINES
440 VAC
150AMP



ELECTRICAL LINES FROM POWER
PACK TO CONTROL CONSOLE:

STOP/START SWITCH:
3 – #12 ELECTRICAL WIRES REQUIRED
(#4, #5, #6)

OPTION #1: (SEE NOTE)
CAB HEATER AND/OR AIR CONDITIONER
4 – #12 ELECTRICAL WIRES REQUIRED
(#X2, #11, #13, GRND.)

ELECTRICAL LINES FROM POWER
PACK TO LOADER/COMPACTOR:

MAIN BOOM DECELARATION VALVES
3 – #12 ELECTRICAL LINES REQUIRED
(#1, #X2, GRND.)

OPTION #2: (SEE NOTE)
ELECTRO–HYDRUALIC SWING STOPS
4 – #12 ELECTRICAL LINES REQUIRED
(#1, #X2, #9, GRND.)

NOTES:

ELECTRICAL WIRES FOR OPTION #1 AND OPTION #2 ARE IN ADDITION TO ELECTRICAL WIRES REQUIRED FOR START/STOP SWITCH AND MAIN BOOM DECELARATION VALVES.

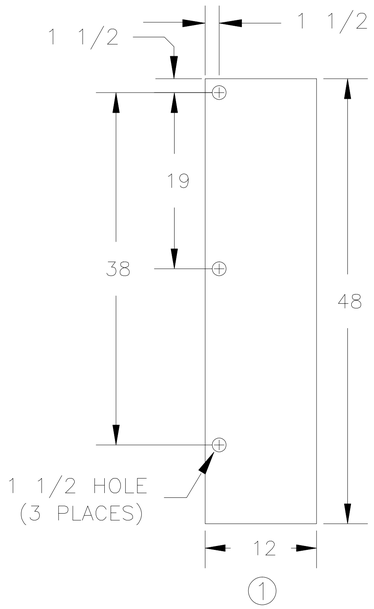
IN SOME CASES, WIRES ARE COMBINED. WHEN DOING INSTALLATION, ONLY RUN THE NUMBER OF LINES NEEDED AS SHOWN IN JUNCTION BOX AT BASE OF MACHINE.

120V WIRES IN JUNCTION BOX AT BASE OF COMPACTOR:

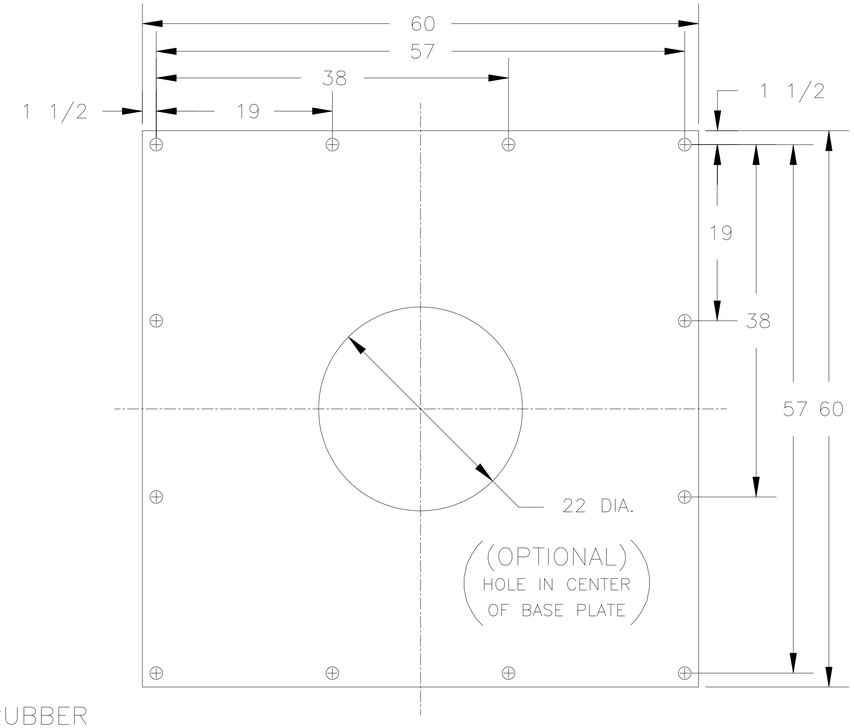
1, 2X, 4, 5, 6, 9, 10, 11, 13, GRND.
(ONLY WIRES 1, 2X, 4, 5, 6, 11, 13 AND GROUND NEED TO BE RAN TO THE MAIN CONTROL PANEL ON THE POWER PACK FROM THE JUNCTION BOX ON THE BASE OF THE COMPACTOR, UNLESS LOCAL CODE REQUIRES ANY ADDITIONAL WIRES.)

GRIZZLY *KNUCKLEBOOM CRANES*

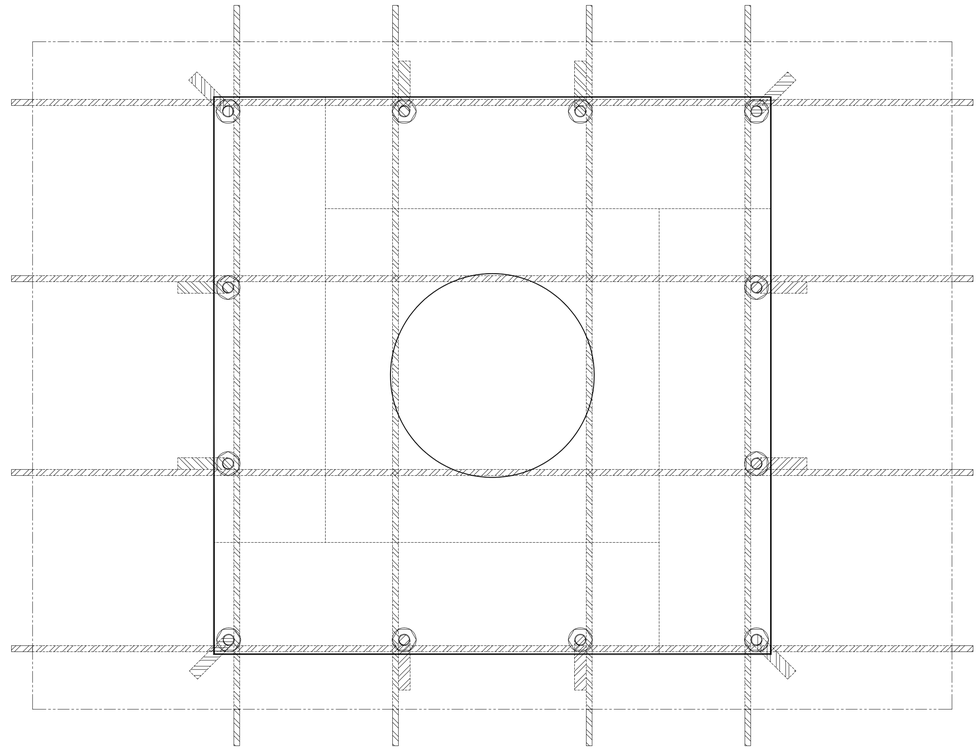
TOLERANCES (EXCEPT AS NOTED)	*CRANE EQUIPMENT MFG.*		
DECIMAL ± .010	MATERIAL: NOTED	SCALE N/A	DRAWN BY J.MAKINSON APPROVED BY
FRACTIONAL ± 1/16	TITLE ELECTRICAL WIRING		
ANGULAR ± 0°30'	DATE 2/10/09	DRAWING NUMBER 10161 R4	



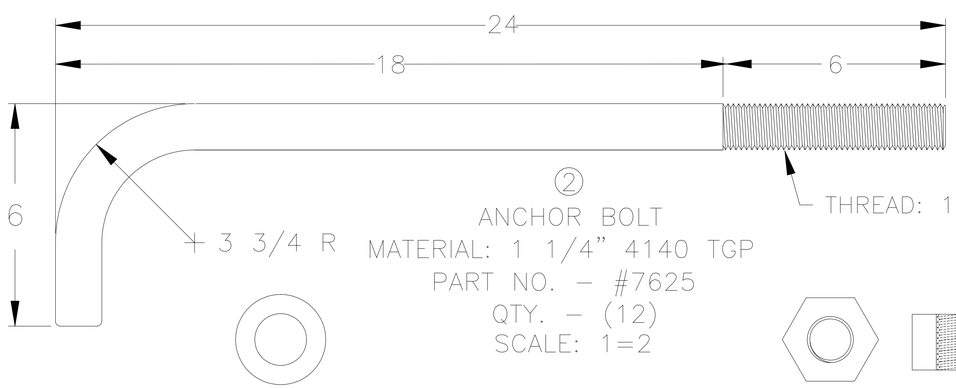
① SHOCK PAD
MATERIAL: 1" LAMINATED RUBBER
PART NO. – #7624
QTY. – (4)
SCALE: 1=8



⑤ BASE PLATE
MATERIAL: 1" M.S.P.
PART NO. – #7354
QTY. – (1)
SCALE: 1=8

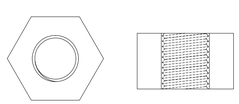


SCALE: 1=8

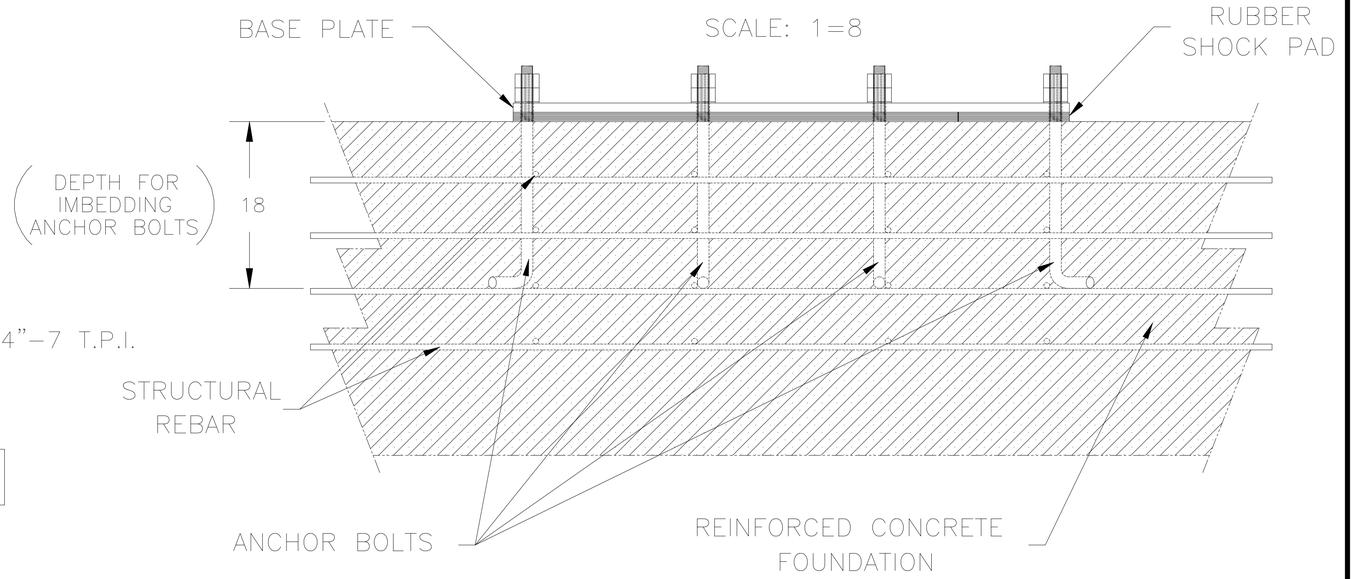


② ANCHOR BOLT
MATERIAL: 1 1/4" 4140 TGP
PART NO. – #7625
QTY. – (12)
SCALE: 1=2

③ FLAT WASHER
MATERIAL: 1 1/4" FLAT WASHER
QTY. – (12)
SCALE: 1=2



④ NUT
MATERIAL: 1 1/4"–7TPI GR.8 NUT
QTY. – (24)
SCALE: 1=2

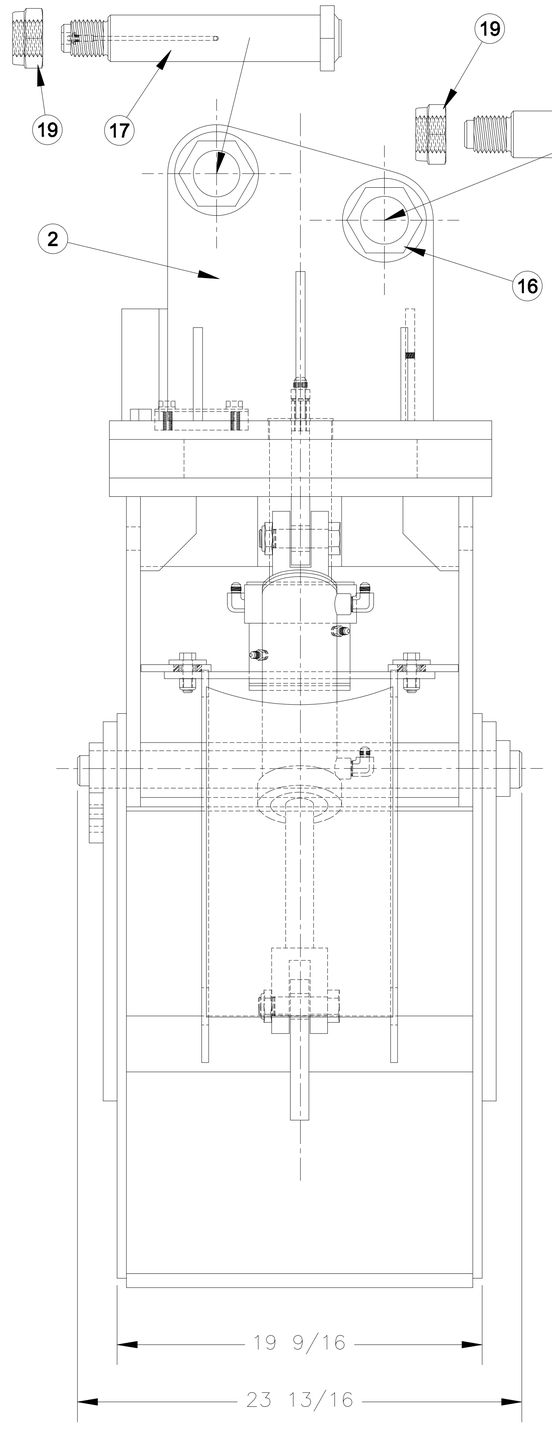


NOTE:

THE ABOVE FOUNDATION IS FOR EXAMPLE ONLY! THE ACTUAL FOUNDATION SHOULD BE DESIGNED BY A STRUCTURAL ENGINEER.

GRIZZLY KNUCKLEBOOM CRANES
CRANE EQUIPMENT MFG.

TOLERANCES (EXCEPT AS NOTED)	MATERIAL: NOTED	SCALE: NOTED	DRAWN BY: J.MAKINSON
DECIMAL: .010			APPROVED BY:
FRACTIONAL: 1/16	TITLE: STANDARD FOUNDATION 5'X5' BASE		
ANGULAR: 0°30'	DATE: 2/21/96	DRAWING NUMBER: 7623 R2	



"GRIZZLY" SOLID WASTE
GRAPPLE SPECIFICATIONS:

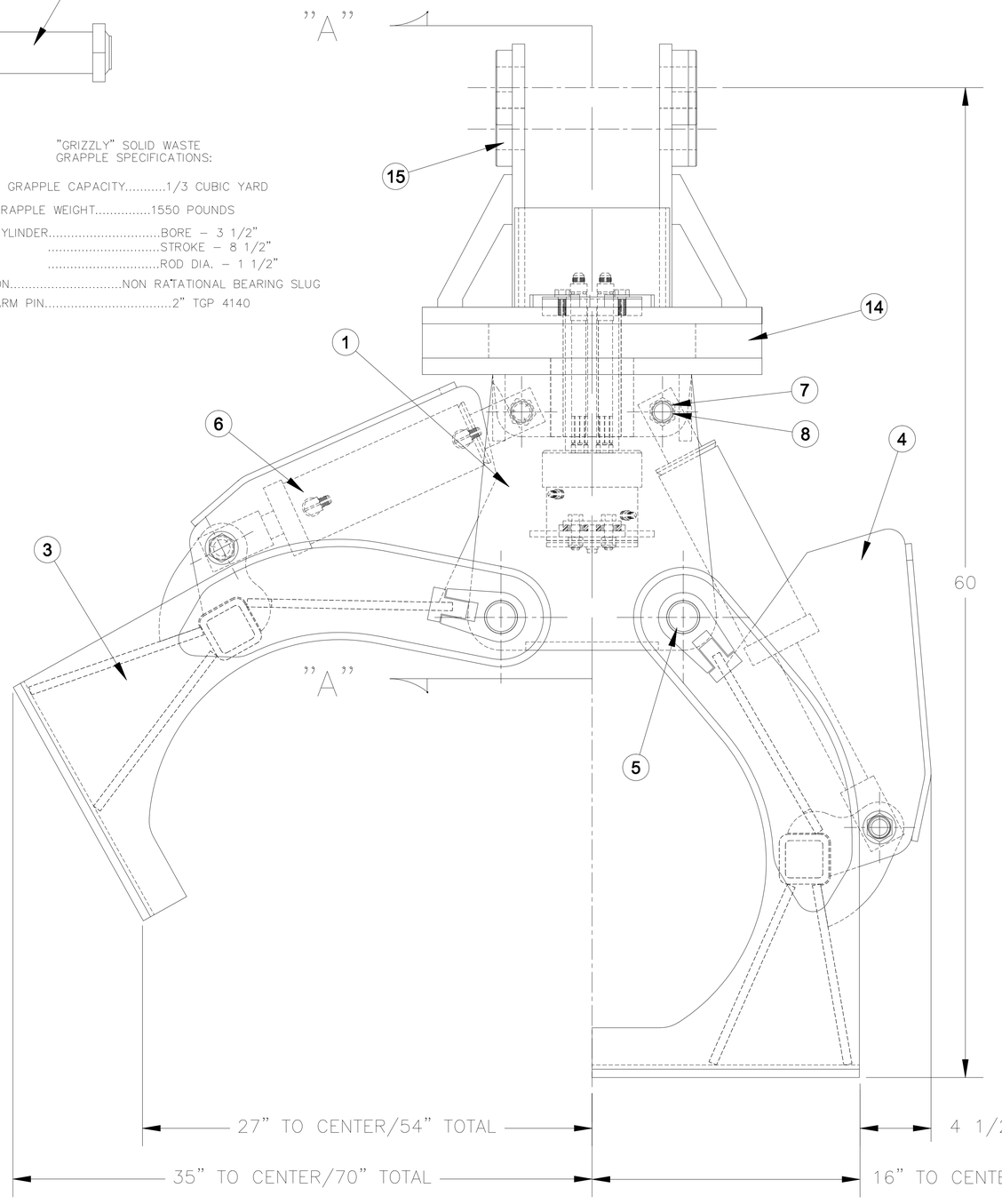
GRAPPLE CAPACITY.....1/3 CUBIC YARD

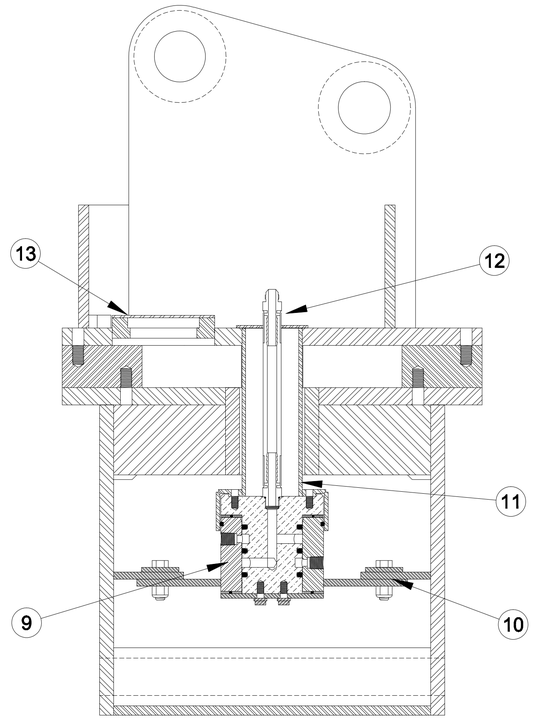
GRAPPLE WEIGHT.....1550 POUNDS

CYLINDER.....BORE – 3 1/2"
.....STROKE – 8 1/2"
.....ROD DIA. – 1 1/2"

ROTATION.....NON RATIONAL BEARING SLUG

ARM PIN.....2" TGP 4140





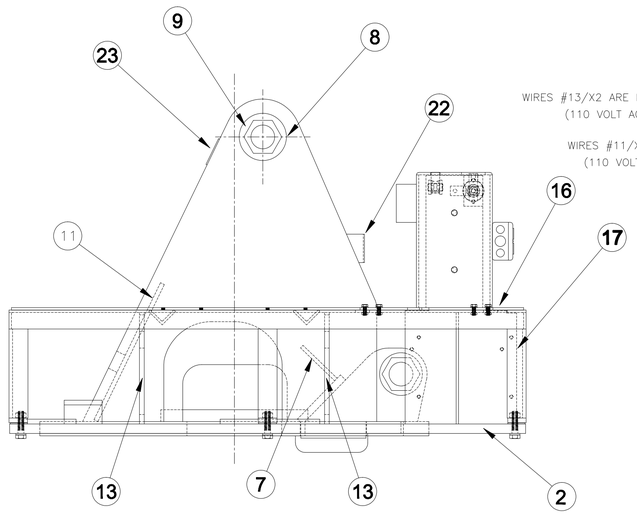
SECTION "A"–"A"

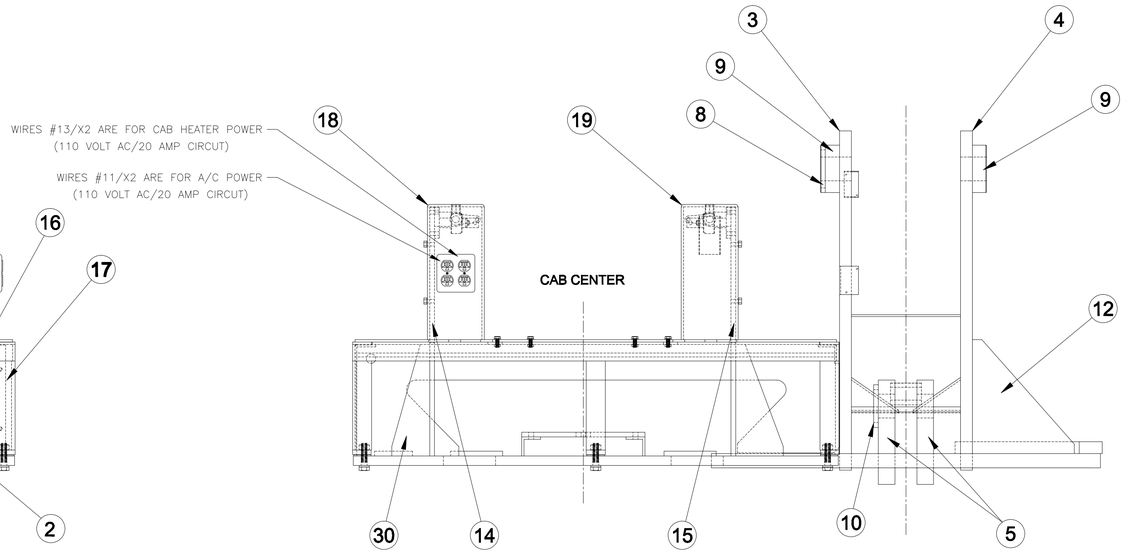
ITEM	PART NO.	DESCRIPTION	QTY.
19	2NCJNL	NUT	2
18	8252–3	PIN (WRISTING TO GRAPPLE)	1
17	8252–3WZ	PIN (BOOM TO GRAPPLE)	1
16	8251	LOCK RING	2
15	2 1/2 X 4 1/2 X 1	BOSS	4
14	6319	MOTOR MOUNTING PLATE	1
13	6433	BEARING SLUG	1
12	SEH–8	SWIVEL EXTENSION HOSE	2
11	6415	SWIVEL EXTENSION/COVER	1
10	6370	SWIVEL MOUNTING ASSEMBLY	1
9	2446	HYDRAULIC SWIVEL	1
8	8491A196	CYLINDER ANCHOR INSERT	4
7	GCB1NCJNL	CYLINDER BOLT/NUT	4
6	1109	CYLINDER	2
5	8235	ARM PIN W/RETAINER	2
4	6358	CYLINDER GUARD	2
3	6223	ARM ASSEMBLY	2
2	6326	UPPER HEAD ASSEMBLY	1
1	6333	LOWER HEAD ASSEMBLY	1

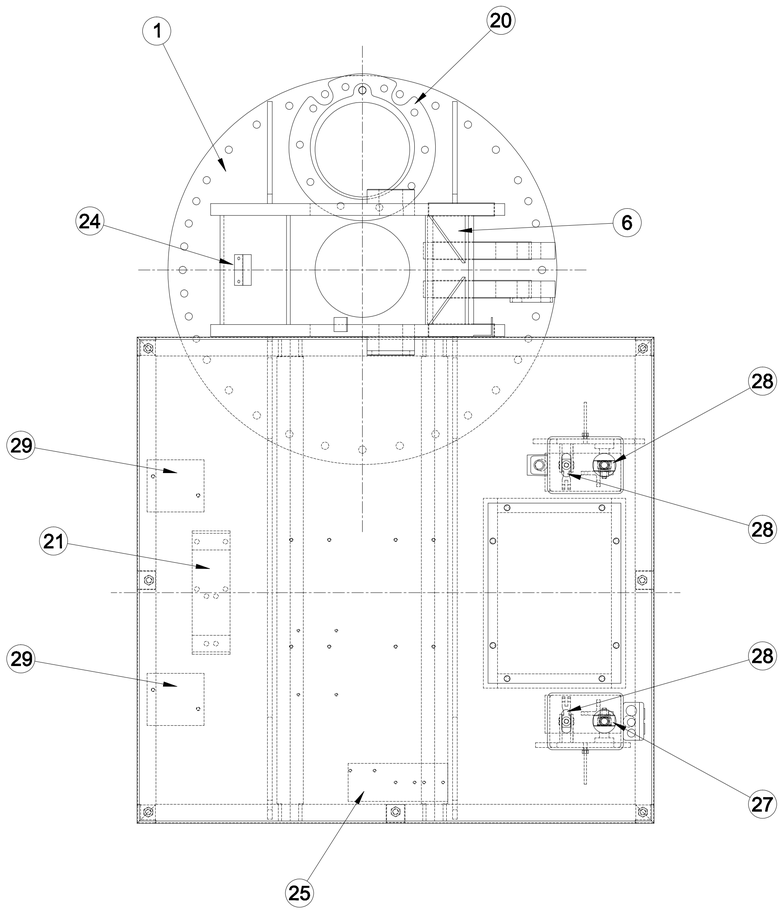
GRIZZLY *KNUCKLEBOOM CRANES*

CRANE EQUIPMENT MFG.

TOLERANCES (EXCEPT AS NOTED)			
DECIMAL .010 ±	MATERIAL: NOTED	SCALE 1=4	DRAWN BY J.MAKINSON
			APPROVED BY
FRACTIONAL 1/16 ±	TITLE: COMPACTOR GRAPPLE		
ANGULAR 0°30' ±	DATE 7/18/11	DRAWING NUMBER 6369SPBC	







WIRING:

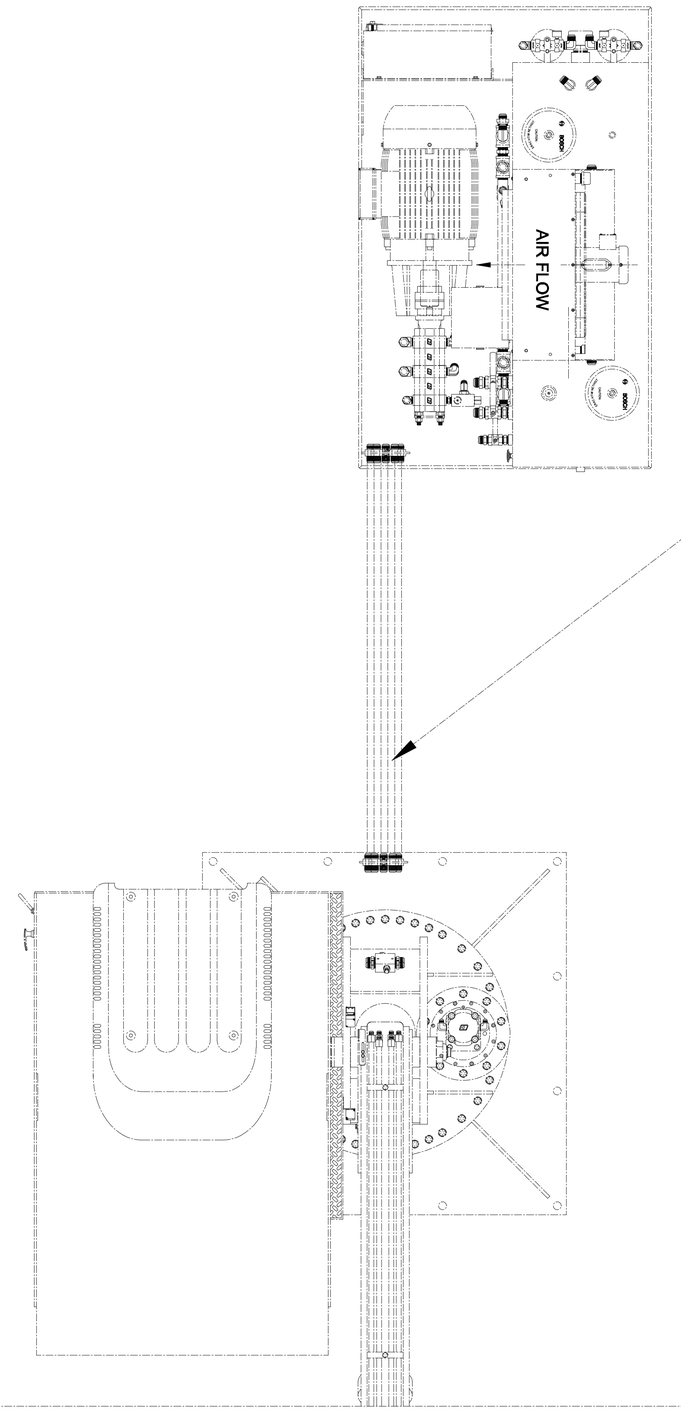
A/C WIRING TYPICALLY COMES IN FROM THE POWER PACK TO THE MAIN JUNCTION BOX AT THE BASE OF THE COMPACOR. IT THEN GOES UP THROUGH THE MAST TUBE TO A 2ND JUNCTION BOX UNDER THE DECK OF THE COMPACTOR. THEN GOING TO AN OUTLET BOX ON THE FRONT OF THE RIGHT HAND CONTROL TOWER. IT THAN GOES TO THE A/C UNIT VIA A MALE STANDARD 110V THREE PRONG PLUG, WHERE IT IS CONNECTED DIRECTLY TO THE A/C UNIT VIA A 3 WIRE 14 GUAGE S.O. CORD AND CONDUIT. THIS IS DONE SO IF THE CAB IS TO BE REMOVED, THE POWER NEEDS ONLT YO BE UNPLUGGED FOR CONVENIENCE. THE CAB HEATER IS ALSO WIRED AND CONNECTED IN THE SAME MANNER. UPON FINAL DECISION OF THE A/C WIRING REQUIREMENTS, APPROPRIATE WIRING FOR A/C CONTROL, THERMOSTAT AND POWER WILL BE INSTALLED IN THE APPROPRIATE MANNER. ALL WIRING, ROUTING AND CONTROLS ARE SUBJECT TO OWNERS VERIFICATION AND APPROVAL.

ITEM	PART NO.	DESCRIPTION	QTY.
30	5351	VALVE PLATE GUSSET	2
29	2663	PRESS.REDUCING VALVE MOUNT	2
28	T53976	CONTROL LEVER	2
27	2614-L	WOBBLE STICK ASSEMBLY	1
26	2614-R	WOBBLE STICK ASSEMBLY	1
25	2641	SOLENOID MOUNTING PLATE	1
24	1 X 2 X 3 1/4	CUSHION BLOCK MOUNT	1
23	2639-2	SENSOR MOUNT	1
22	2639-1	SENSOR MOUNT	1
21	2629	ACCUMULATOR BRACKET	1
20	2002	GEAR BOX MOUNTING RING	1
19	2650-L	CONTROL CONSOLE	1
18	2650-R	CONTROL CONSOLE	1
17	5354	DECK ASSEMBLY	1
16	5315-2	UPPER DECK PLATE	1
15	2648-JIB	VALVE PLATE	1
14	2648-MAIN	VALVE PLATE	1
13	5349	DECK SUPPORT	2
12	5304	HEAD GUSSET	2
11	8201-36	BACK PLATE	1
10	8251-1	LOCK RING	1
9	2 1/1 X 5 X 1 1/2	HEAD BOSS	2
8	8227	LOCK RING	1
7	3070	ANCHOR GUSSET	2
6	5327	ANCHOR PLATE	1
5	5303	CYLINDER ANCHOR	2
4	5330	HEAD EAR	1
3	5331	HEAD EAR	1
2	5346	LOWER DECK PLATE	1
1	5328	BEARING PLATE	1

GRIZZLY *KNUCKLEBOOM CRANES*

CRANE EQUIPMENT MFG.

TOLERANCES (EXCEPT AS NOTED)			
DECIMAL ± .010	MATERIAL: NOTED	SCALE 1=8	DRAWN BY J.MAKINSON
FRACTIONAL ± 1/16	TITLE: 48" HEAD/DECK PARTS		APPROVED BY
ANGULAR ± 0°30'	DATE 7/18/11	DRAWING NUMBER 5338SCPB	



HYDRAULIC LINES BETWEEN POWER PACK AND CONTROL VALVE:

2 – 1" PRESSURE LINES
1 – 3/4" PRESSURE LINE
2 – 1" RETURN LINES
1 – 1/4" CASE DRAIN

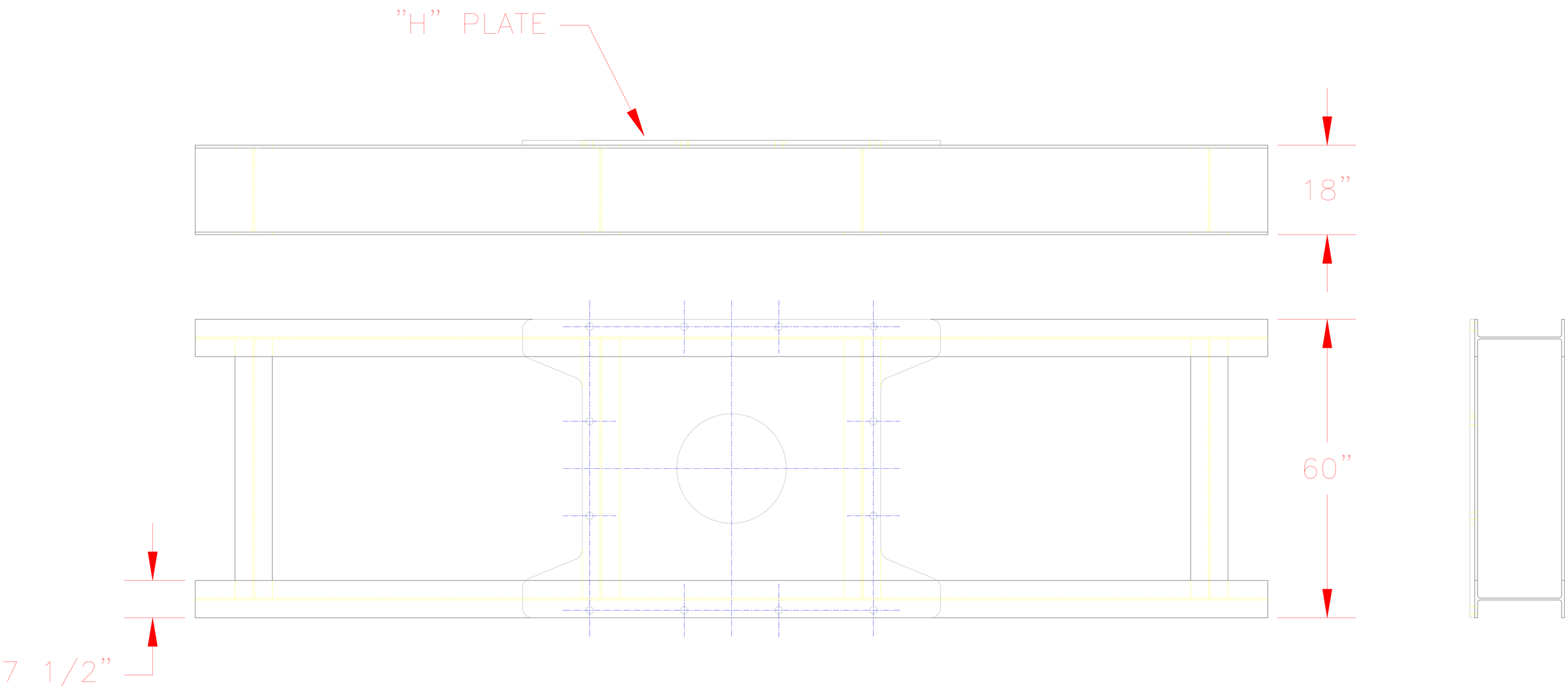
NOTE: (ALL PIPING TO BE ASTM A53 GRADE A SCHEDULE 40 ELECTRIC RESISTANCE WELDED.)

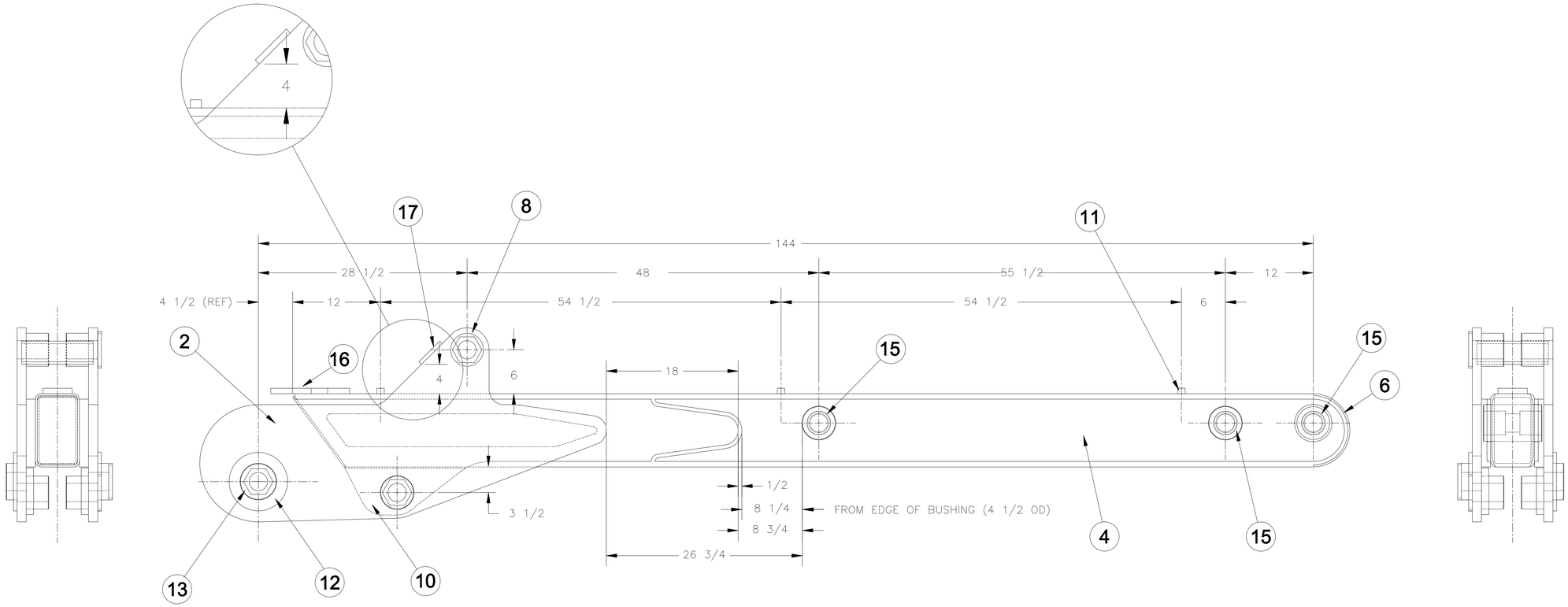
NOTE:

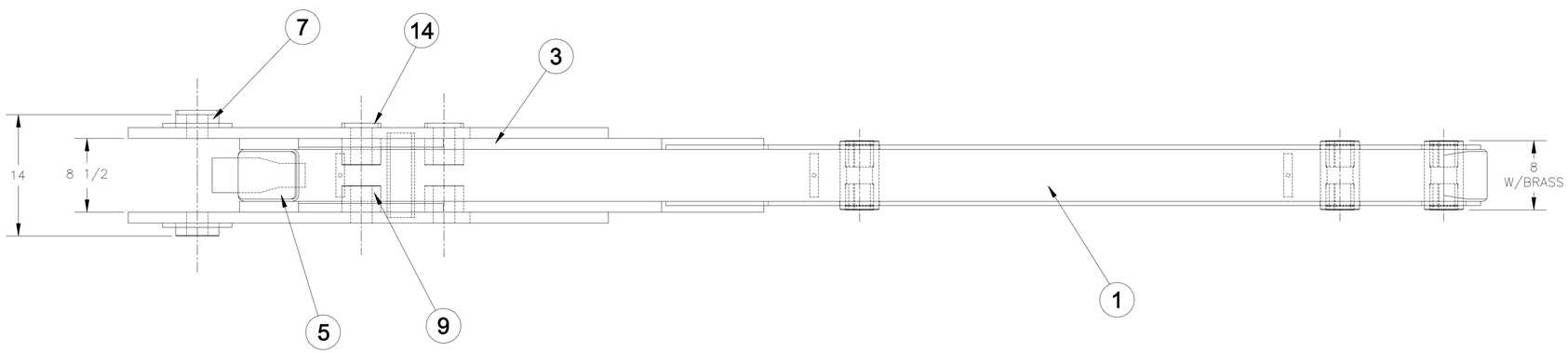
BULKHEAD PLATES AND FITTINGS ARE FACTORY INSTALLED ON POWER PACK, AND LOADER (COMPACTOR). ALL FITTINGS ARE MALE J.I.C.

GRIZZLY *KNUCKLEBOOM CRANES*

TOLERANCES (EXCEPT AS NOTED)	*CRANE EQUIPMENT MFG.*		
DECIMAL ± .010	MATERIAL: NOTED	SCALE N/A	DRAWN BY J.MAKINSON APPROVED BY
FRACTIONAL ± 1/16	TITLE HYDRAULIC PIPING		
ANGULAR ± 0°30'	DATE 2/11/09	DRAWING NUMBER 10167 R1	


"H" PLATE
18"
60"
7 1/2"





NOTES:

JIB CYLINDER-

CLOSED LENGTH IS 52.750"

STOPS-

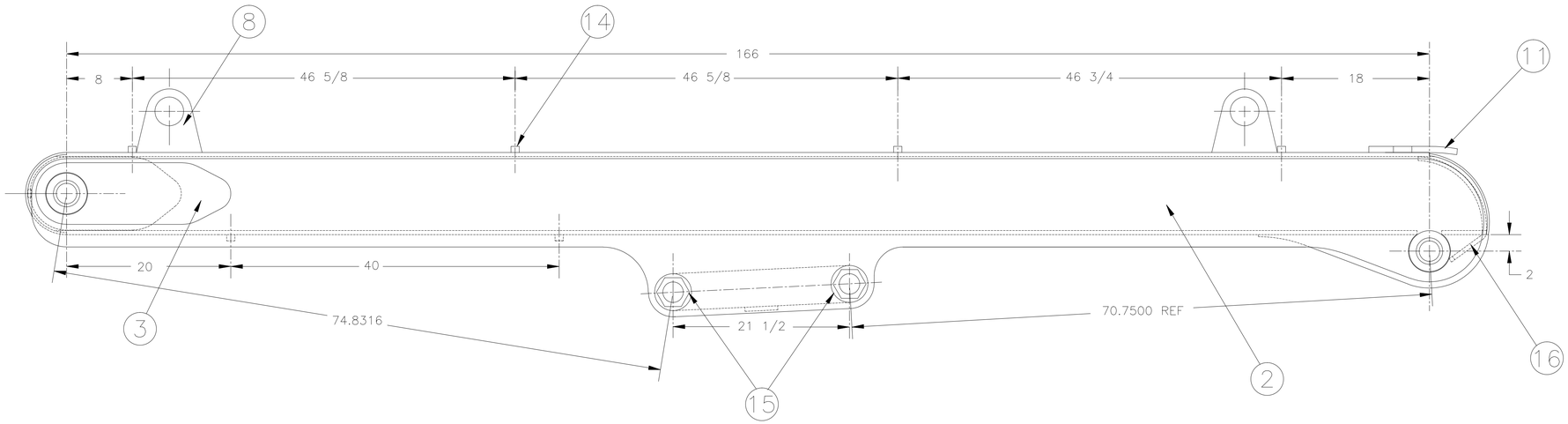
SET BOOM STOPS WITH JIB CYLINDER PIN HOLE CENTERS AT 88.750"

ITEM	PART NO.	DESCRIPTON	QTY.
17	1/2 X 4 X 9 3/4	STIFFENER (FLAT BAR)	1
16	2062	BOOM STOP	1
15	3313	BUSHING RETAINER	3
14	8251	LOCK RING	2
13	8227-1	LOCK RING	1
12	4339	REINFORCING RING	2
11	3347	PIPE CLAMP BASE	3
10	4363	JIB ROD BUSHING SUPPORT	2
9	2 1/2 X 4 1/2 X 3 3/32	SPACER BOSS (JIB ROD)	2
8	2 1/2 X 4 1/2 X 3 3/32	SPACER BOSS (WRISTING)	2
7	2 1/2 X 5 X 1 1/2	KNUCKLE BOSS	2
6	3076	END CAP	1
5	4053	END CAP (25' BOOM)	1
4	4344-Z	STIFFENER	2
3	4364	SPACER PLATE	2
2	4317-1	KNUCKLE EAR	2
1	4360-Z	BOOM TUBE (25' BOOM)	1

GRIZZLY *KNUCKLEBOOM CRANES*

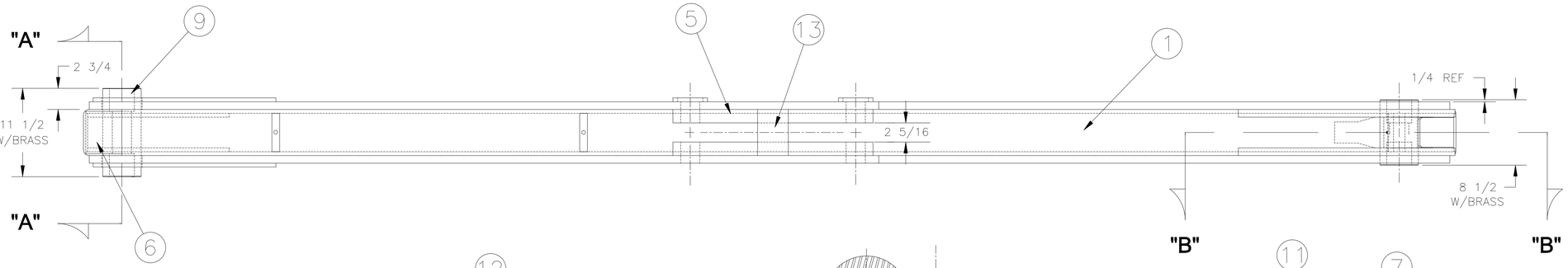
CRANE EQUIPMENT MFG.

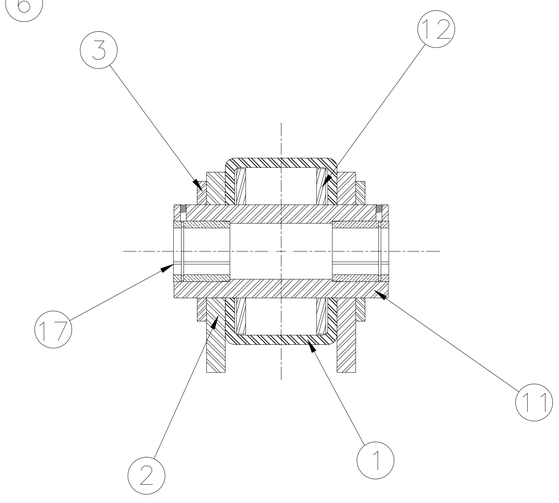
TOLERANCES (EXCEPT AS NOTED)			
DECIMAL .010 ±	MATERIAL: NOTED	SCALE 1=8	DRAWN BY J.MAKINSON
			APPROVED BY
FRACTIONAL 1/16 ±	TITLE SW JIB BOOM ASSEMBLY		
ANGULAR 0°30' ±	DATE 7/18/11	DRAWING NUMBER 4359SCPB	



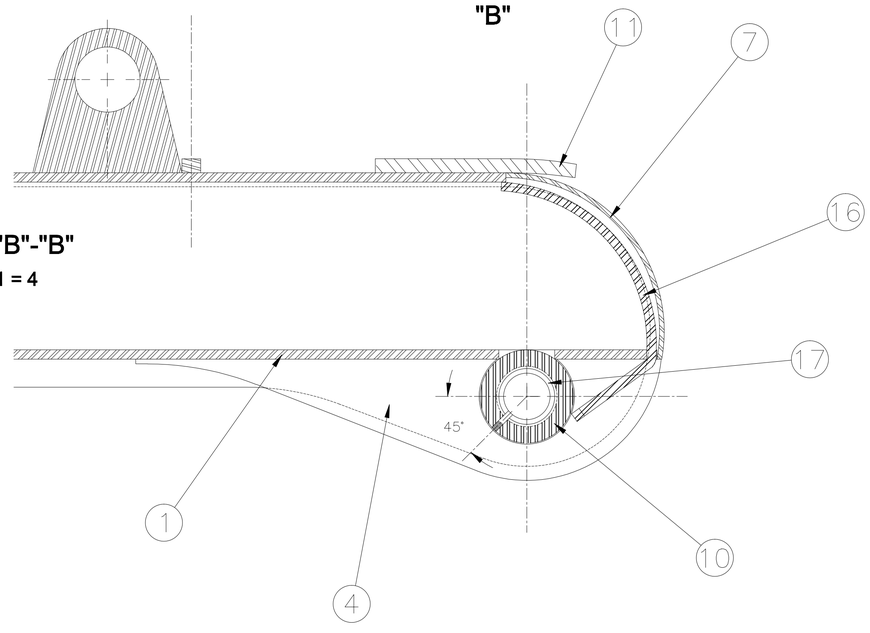
NOTES:

STOPS–
SET WITH JIB CYLINDER PIN HOLE CENTERS AT 88.750" APART.





SECTION "A"-"A"
SCALE: 1 = 4



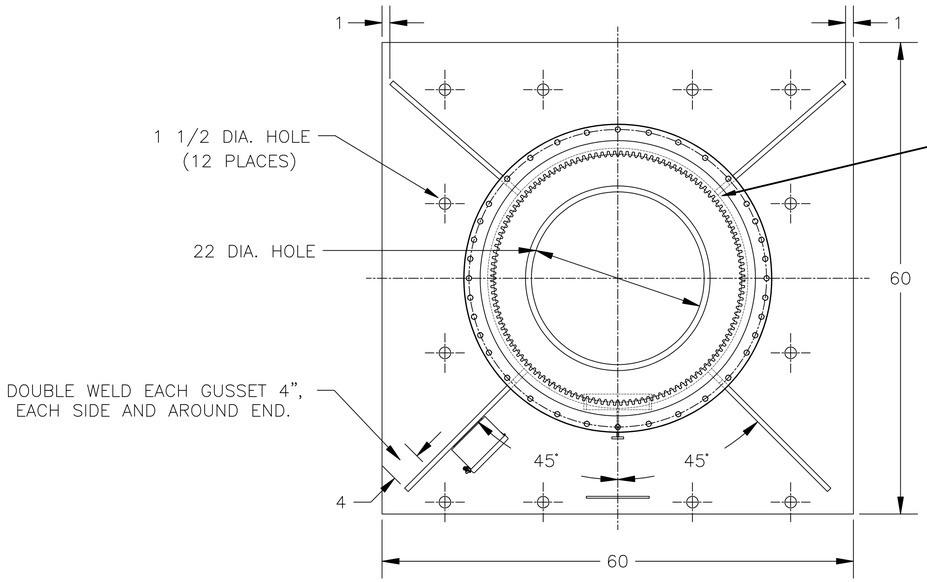
SECTION "B"-"B"
SCALE: 1 = 4

ITEM	PART NO.	DESCRIPTION	QTY.
17	3170	HEAD/KNUCKLE BUSHING	4
16	3350	KNUCKLE RETAINER SUPPORT	1
15	8251	LOCK RING	2
14	3347	PIPE CLAMP BASE	6
13	1/2 X 4 X 6	STIFFENER (FLAT BAR)	1
12	3308	INSIDE BOOM STIFFENER	2
11	2062	STOP	1
10	3356	BUSHING RETAINER	1
9	3169	BUSHING RETAINER	1
8	2440	LIFT EYE	2
7	3223	END CAP	1
6	3076	END CAP	1
5	3345–Z	STIFFENER (25' BOOM)	2
4	3357	BUSHING HANGER (KNUCKLE)	2
3	3307	BUSHING SUPPORT	2
2	3349–Z	SIDE PLATE (25' BOOM)	2
1	3351–Z	BOOM TUBE (25' BOOM)	1

GRIZZLY *KNUCKLEBOOM CRANES*

TOLERANCES (EXCEPT AS NOTED)	CRANE EQUIPMENT MFG.		
DECIMAL .010	MATERIAL: NOTED	SCALE 1=8	DRAWN BY J.MAKINSON APPROVED BY
FRACTIONAL 1/16	TITLE MAIN BOOM ASSEMBLY 215SW		
ANGULAR 0'30'	DATE 7/18/11	DRAWING NUMBER 3348SCPB	

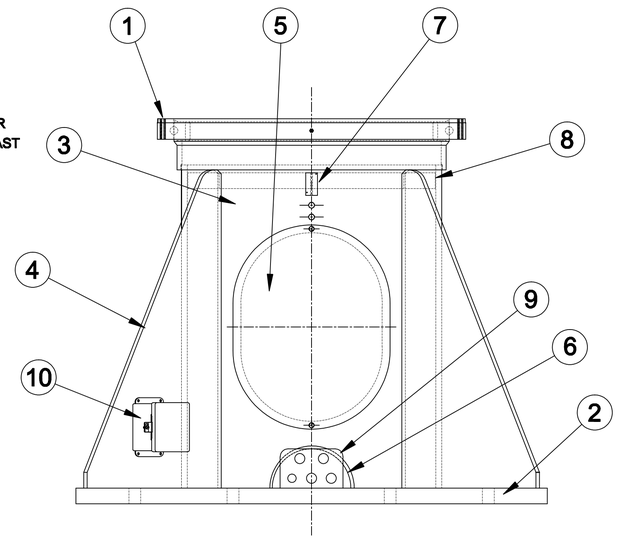
FRONT (TO PIT OPENING)



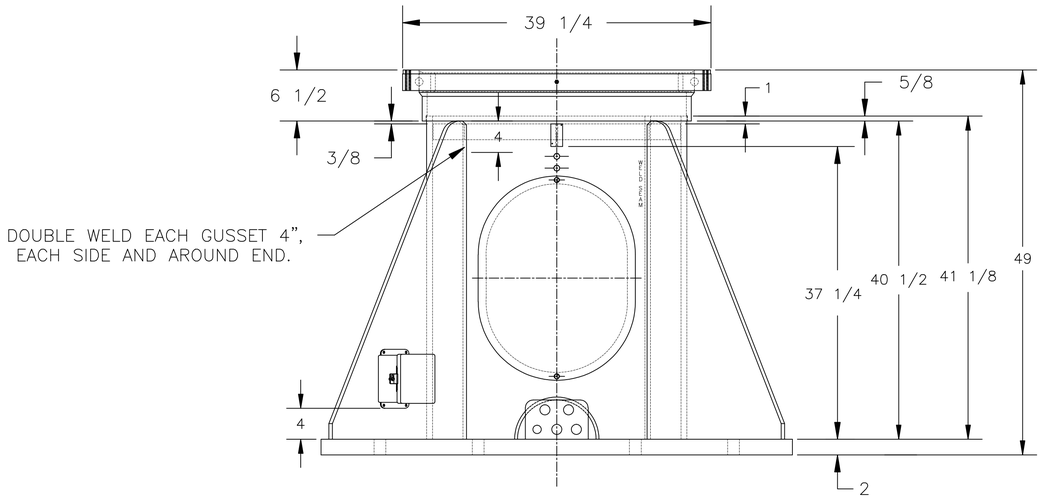
ASSEMBLY NOTE:

POSITION MAST SO WELD SEAM IS UNDER MAST SIDE GUSSET BEFORE TACKING MAST INTO POSITION.

REAR VIEW



BACK (TO REAR WALL)

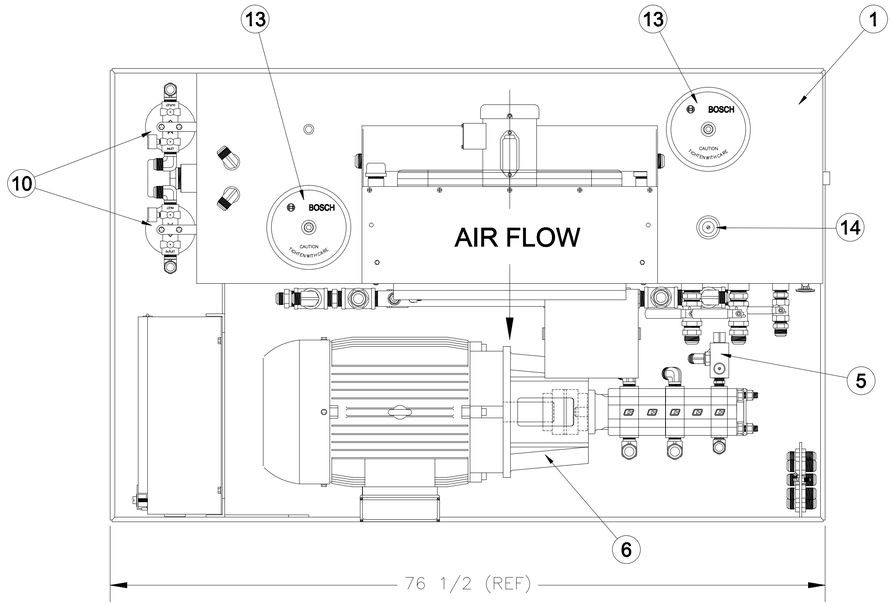


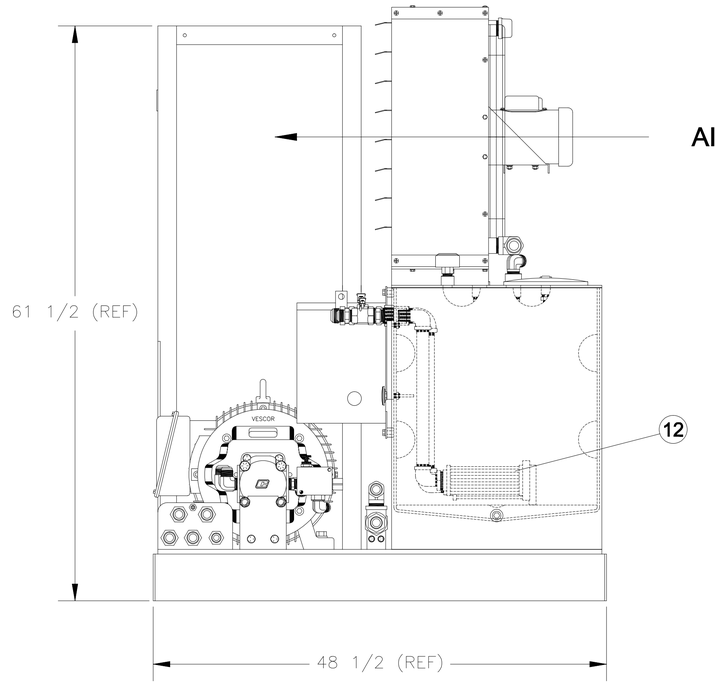
ITEM	PART NO.	DESCRIPTION	QTY.
10	55390	ELECTRICAL JUNCTION BOX	1
9	2644-1	BULKHEAD PLATE	1
8	7667	MAST DONUT	1
7	7637	SWING SENSOR MOUNT	1
6	10" 1/2HR	HOSE RING	1
5	7558	ACCESS COVER	1
4	7543	MAST GUSSET	4
3	7666	MAST TUBE	1
2	7354JCNC	BASE PLATE	1
1	A1035N4A	TURNTABLE BEARING	1

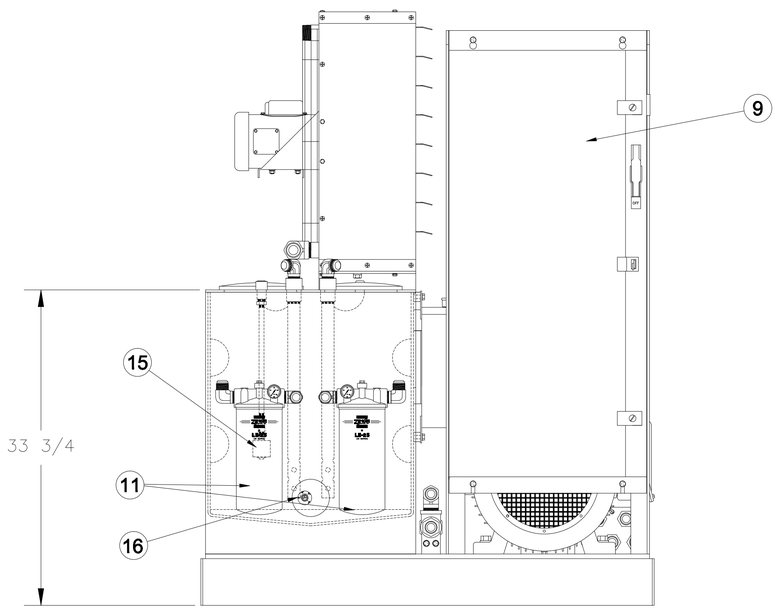
GRIZZLY *KNUCKLEBOOM CRANES*

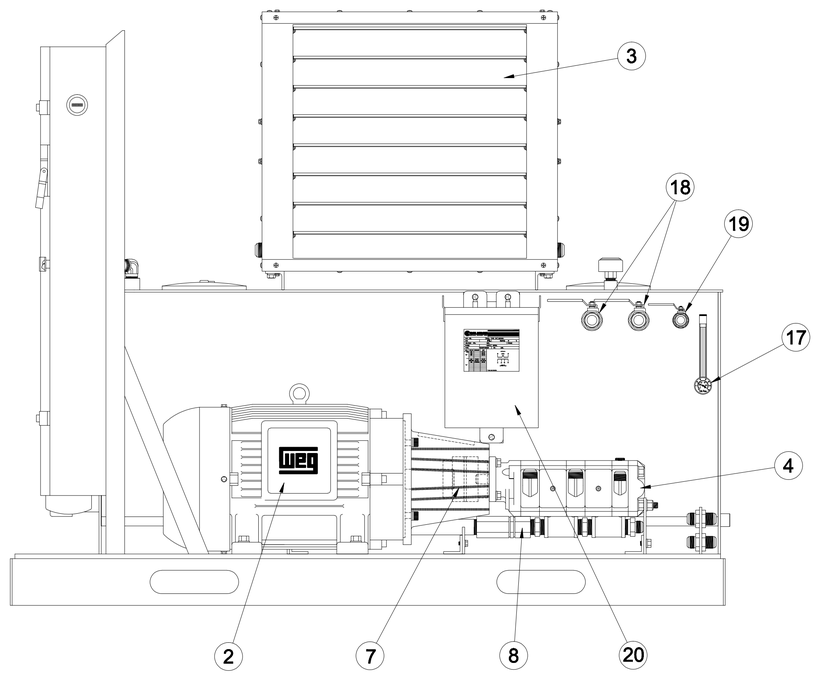
CRANE EQUIPMENT MFG.

TOLERANCES (EXCEPT AS NOTED)			
DECIMAL ± .010	MATERIAL: NOTED	SCALE 1=8	DRAWN BY J.MAKINSON
			APPROVED BY
FRACTIONAL ± 1/16	TITLE 215SW MAST ASSEMBLY		
ANGULAR 0°30'	DATE 12/18/09	DRAWING NUMBER 7544JCNC	







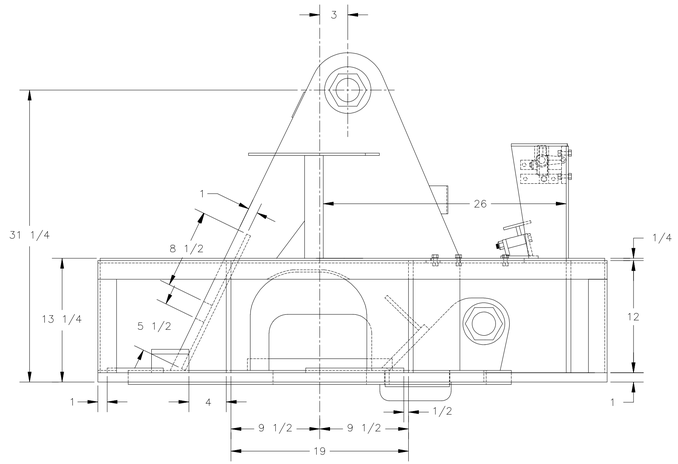


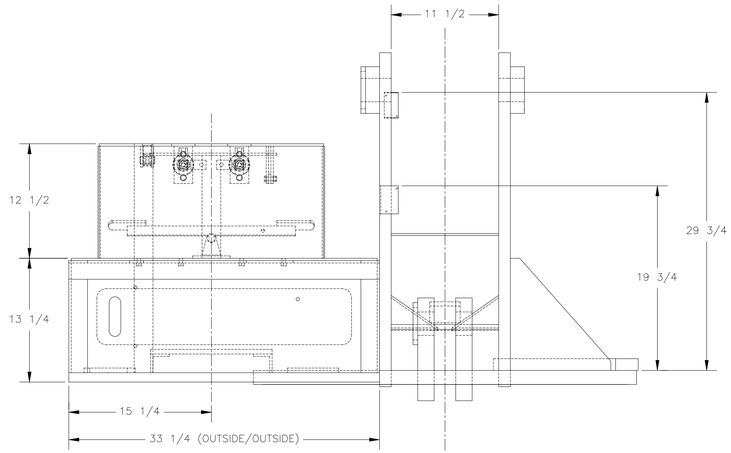
ITEM	PART NO.	DESCRIPTION	QTY.
20	5KVA/7KVA	ELECTRICAL TRANSFORMER	1
19	BFV-16	OIL SHUT OFF VALVE	1
18	BFV-20	OIL SHUT OFF VALVE	2
17	B1557-2 (7")	SIGHT GUAGE	1
16	KB2T10005M1	TANK HEATER	1
15	41202	FLOAT SWITCH	1
14	BF-12	TANK BREATHER	1
13	725080	TANK LID	2
12	SS-150-0-0-M	SUCTION STRAINER	3
11	LE-25	RETURN FILTER ELEMENT	2
10	SS-100-25	RETURN FILTER HEAD	2
9	ECN552AAAH	MOTOR STARTER PANEL	1
8	3C20F-F65	INLINE CHECK VALVE	1
7	M500	PUMP/MOTOR COUPLING	1
6	1969	PUMP/MOTOR ADAPTER	1
5	2F86-P6-6-6-25S	SWING FLOW CONTROL	1
4	CF04283	HYDRAULIC PUMP	1
3	AO-30	HYDRUALIC OIL COOLER	1
2	BLC-50-326T	ELECTRIC MOTOR	1
1	2436-A	POWER PACK ASSEMBLY	1

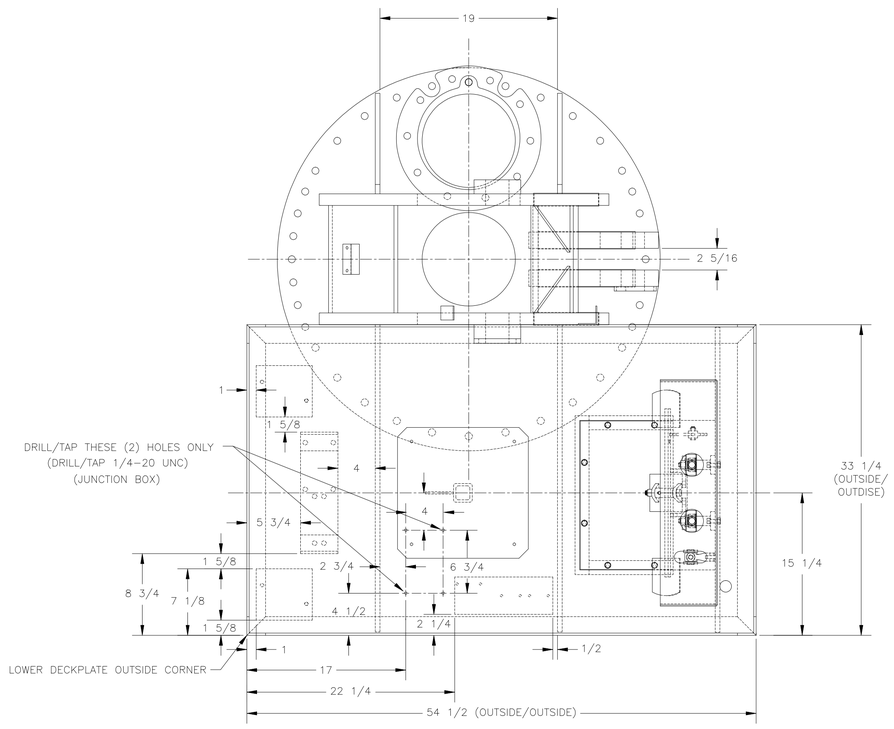
GRIZZLY KNUCKLEBOOM CRANES

CRANE EQUIPMENT MFG.

TOLERANCES (EXCEPT AS NOTED)			
DECIMAL ± .010	MATERIAL: NOTED	SCALE 1=8	DRAWN BY J.MAKINSON; APPROVED BY
FRACTIONAL ± 1/16	TITLE: REMOTE POWER PACK		
ANGULAR 0°30'	DATE 3/22/10	DRAWING NUMBER 2436 R10	



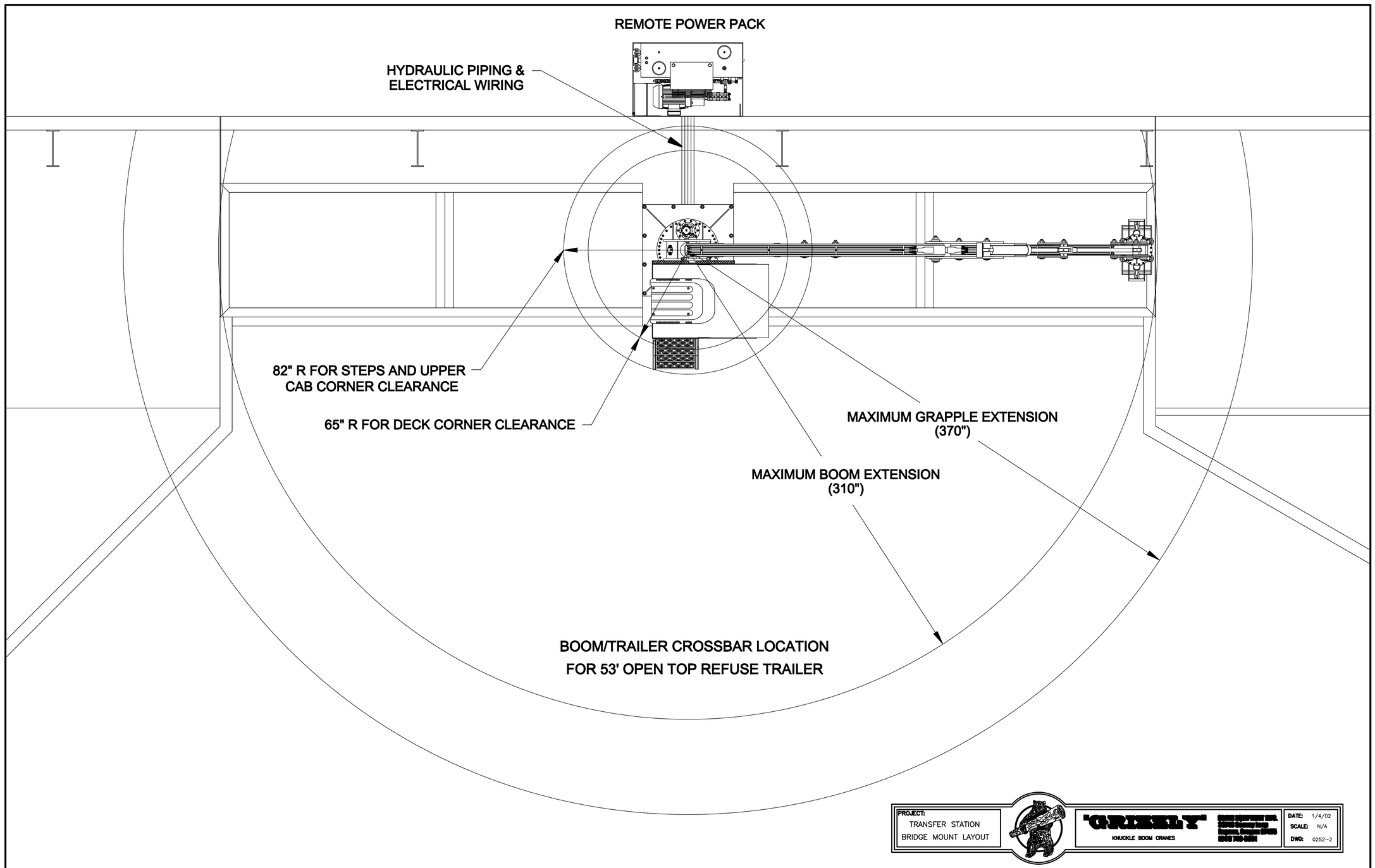




GRIZZLY *KNUCKLEBOOM CRANES*

CRANE EQUIPMENT MFG.

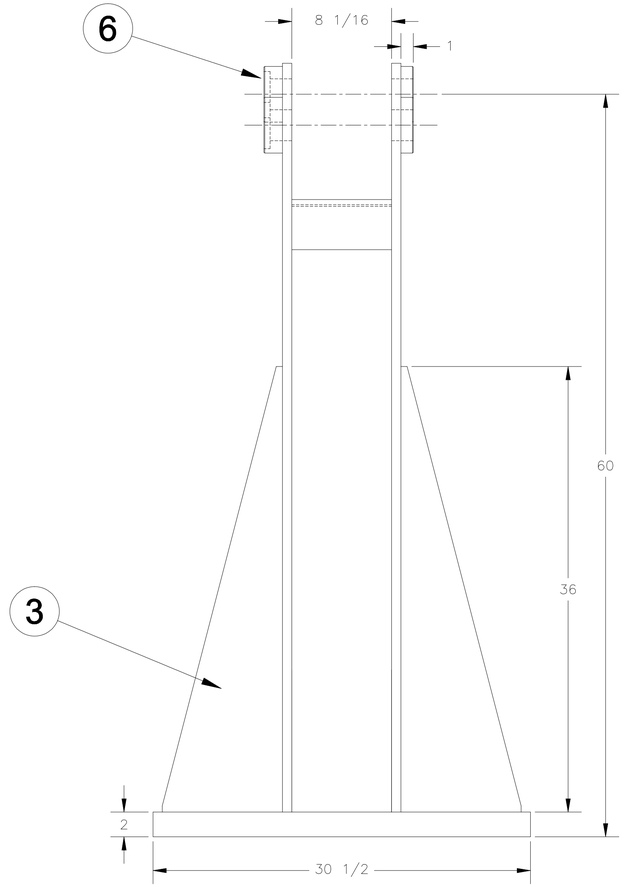
TOLERANCES (EXCEPT AS NOTED)			
DECIMAL ± .010	MATERIAL: NOTED	SCALE 1=8	DRAWN BY J.MAKINSON / APPROVED BY
FRACTIONAL ± 1/16	TITLE: 30" HEAD/DECK ASSEMBLY		
ANGULAR ± 0°30'	DATE 11/12/02	DRAWING NUMBER 5347	

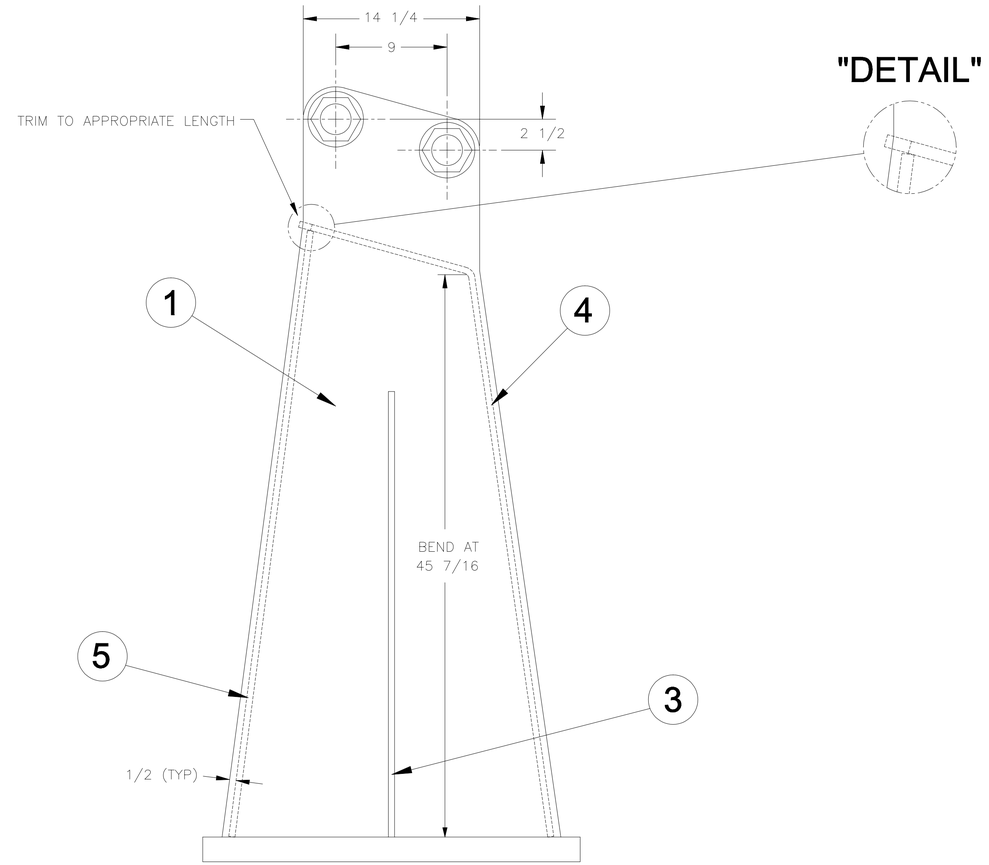


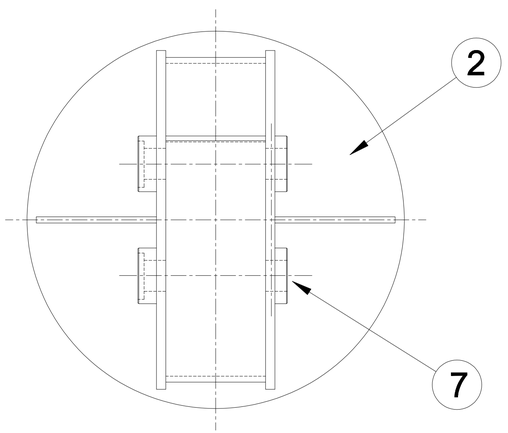
PROJECT:
TRANSFER STATION
BRIDGE MOUNT LAYOUT

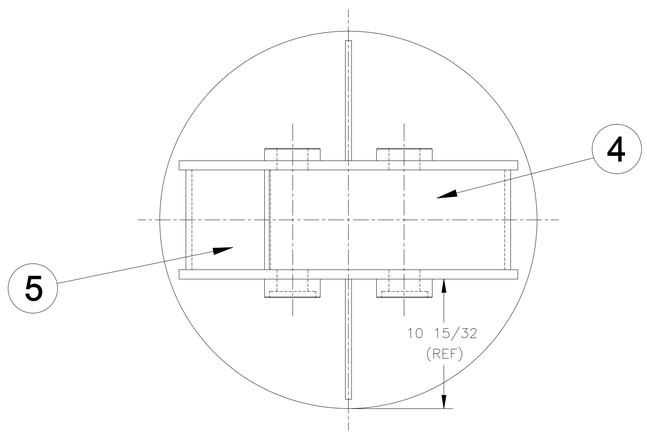
"GRIZZLY"
KNUCKLE BOOM CRANES

DATE: 1/4/02
SCALE: N/A
DWG: 0252-2









ITEM	PART NO.	DESCRIPTION	QTY.
7	6394-4	BOSS	2
6	8254	LOCKRING/BOSS	2
5	6428-2	REAR SUPPORT	1
4	6428-1	FRONT/CENTER SUPPORT	1
3	6429	SIDE GUSSET	2
2	6407	BASE PLATE	1
1	6427	SIDE PLATE	2

GRIZZLY *KNUCKLEBOOM CRANES*

CRANE EQUIPMENT MFG.

TOLERANCES (EXCEPT AS NOTED)			
DECIMAL ± .010	MATERIAL: NOTED	SCALE 1=6	DRAWN BY J.MAKINSON; APPROVED BY
FRACTIONAL ± 1/16	TITLE 60" BOTTOM MOUNT TAMPER		
ANGULAR 0°30'	DATE 7/20/11	DRAWING NUMBER 6426SCPB	