

# HERCULES 5042-46 SIGN POST DIGGER DERRICK

## Introduction

UTV International has manufactured a line of tracked carriers since 1992. In 1996, we integrated our first digger derrick onto a tracked carrier. Since then we have been engaged in a continual product improvement process that has resulted in the production of our 3rd generation boom, the Hercules 5042-46 Digger Derrick.

The truck mounted Hercules 5042-46 ships as a complete assembly with the boom and outriggers mounted on a bolt on subframe ready for installation on a 19,000 lb GVWR chassis with an 84", 108", 120" or 132" C.A. dimension.

The maximum sheave height is 41' with a maximum lift capacity of 5,000 lbs. The optional patented folding bucket system folds out in when not in use and can be hydraulically deployed into the operating position in less than one minute when required. Maximum bucket reach is 46 ft.



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### SPECIFICATIONS

**SUBFRAME** - The subframe is a full width (96") all steel construction that is bolted to the vehicle frame in 3 locations using high tensile 5/8"-11 grade 8 hex head cap screws with Nyloc locknuts. The front and rear of the subframe incorporates shear plates and no frame extensions are required to mount the subframe onto the vehicle frame.

**OUTRIGGERS** - The curb side outriggers are a 2 x 57" hydraulically powered radial outriggers with pivoting 10" x 12" steel outrigger foot pads. The front curb side outrigger deploys at a 90 degree angle and the rear curb side outrigger deploys at 45 degrees allowing full rated load operation. Maximum extension from the center line of the vehicle on the curb side in fully deployed position is 91.25". In fully deployed position the radial stabilizers provide 10" penetration.

The street side outriggers are 2 x 40" hydraulically powered vertical stabilizers allowing a single lane foot print. Maximum extension on the street side from the center line of the vehicle is 51.75". In fully deployed position the vertical stabilizers provide 10" penetration.

**OUTRIGGER OPTION** - 4 x 57" hydraulically powered radial outriggers with pivoting 10" x 12" steel outrigger feet in all four positions. The forward outriggers deploy at a 90° angle and the rear outriggers deploy at a 45° angle allowing full rated load operation at any position. When fully deployed the maximum width is 199" and the penetration is 10" providing for an exceptionally stable platform.

Optional larger outrigger feet are available with a dimension of 18" x 20". They can be installed in the rear position and add 8" to the overall width.

**OUTRIGGER OPTION** - A-Frame hydraulically powered outriggers, front & rear with steel outrigger feet. When fully deployed the maximum width is 128" and the penetration is 9".

**TOWER** - The center rear mounted tower contains the outrigger and optional lower tool outlet controls and has a 1 ¼" top plate with a machined flat surface to support the rotation bearing.

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**ROTATION** - The unit is equipped with a worm gear driven slew bearing and also comes with a multi port rotating hydraulic manifold allowing for continuous rotation. Side load protection is provided by a counterbalance valve. The 1 1/4" tower mounting plate is milled flat after welding to ensure perfectly flat mounting surface for the slewing bearing. All rotation bearing mounting bolts are 5/8"-11 grade 8. On standard models the rotation is continuous and unrestricted.

**RESTRICTED ROTATION OPTION** - Controlled by magnetic switches located on the tower that activate the crane overload system when they detect over rotation.

**TURNTABLE** - The turntable is the mounting point for the control console, turntable step and operator seat incorporates a grab handle to assist the operator while climbing up to the seat. The optional bucket fold/unfold control is located on the side of the turntable.

**OPERATOR SEAT** - The operator seat is a folding vinyl seat with back support and armrests.

**CONTROL CONSOLE** - The control console is the location of all the auger and boom lower controls. It uses twin joystick controls for all crane functions and a single lever control for the winch. It also has a separate auger valve, an auger speed switch, pole claw controls, upper/lower controls switch, 3 position throttle switch and the overload reset switch.

**FIRST BOOM** - The lower boom is constructed using a 7" x 9" high tensile strength steel tube and has HDMW polyurethane sliding pads with a total surface area of 94" square. Sliding pad adjustment is achieved by the removal of 2 stainless steel socket-head cap screws and then shimming the pads with stainless steel shims. No further disassembly is required. The maximum declination is -15° and the maximum elevation is 80°. The first boom has an externally mounted cylinder for the operation of the extension.

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**SECOND BOOM** - This extension is constructed using a 6" x 8" high tensile strength steel tube and has HDMW polyurethane sliding pads with a total surface area of 64"<sup>2</sup>. Sliding pad adjustment is achieved by the removal of 2 stainless steel socket head cap screws and then shimming the pads with stainless steel shims. No further disassembly is required. The maximum stroke of the second boom is 108". The second boom has an internally mounted cylinder for the operation of the third boom.

**OPTIONAL INSULATED THIRD BOOM** - A high strength insulated fiberglass third boom with 46KV insulation rating is available.

**BOOM TIP** - The boom tip is attached to the third boom by 10 1/2"-13 grade 8 bolts and has 2 x 6" anodized aluminum sheaves with permanently lubricated bushings and are grooved to accommodate ropes from 7/16" to 7/8". The boom tip flare design assists the optional pole claw in the handling and placement of poles. The pole claw and 4<sup>th</sup> boom are both attached to the boom tip.

**OPTIONAL POLE CLAW** - The pole claw has a hydraulically operated open/close and tilt function operated by momentary contact toggle switches on the control console. The tilt function has a range of 75°. The pole claws are one piece steel 5/8" thick and are 19" long from center of rotation to center of tip. The pole claws have laser cut gear profiles on the ends to ensure trouble free operation under any conditions. The pole claws operate through a range of 110° and have a maximum opening of 42" and can accommodate poles of up to 20" in diameter. The open/close function is positively controlled through a double acting lock valve that ensures reliable holding of the pole during manipulation.



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**OPTIONAL FOLDING BUCKET ATTACHMENT** - The insulated fiberglass 4th boom is attached to the boom tip in a manner that allows it to be hydraulically folded out of the way when not in use. When the bucket is folded it rests on the top of the boom with the bottom of the bucket 24" below the boom tip ensuring that it does not interfere with pole handling operations. When extended the bucket attachment point is 44" above the sheave height. The 4<sup>th</sup> boom has a 46 kVA Category "C" insulation rating.

The bucket is gravity leveled and further motion is controlled with a brake. The 4th boom has an attachment point for a safety lanyard. The standard bucket is 24" x 24" x 42" and can be supplied with an optional liner and an optional bucket cover.

**UPPER CONTROLS** - Top controls are a twin joystick system for all crane movements and a single lever for the winch.

**MATERIAL HANDLING JIB** - Available with the folding bucket option. It is adjustable for both length and angle and is usable from 0° to 80° with a maximum load capacity of 600 lbs. The jib is equipped with sheaves to allow the use of the crane winch and rope and can be installed and removed without tools. See load chart below.

<b>JIB LOAD CAPACITY</b>			
<b>BOOM ANGLE</b>	<b>All Booms Collapsed</b>	<b>Only 2nd Boom Extended</b>	<b>2nd Boom and 4' of 3rd Boom Extended</b>
<b>0°</b>	<b>400 lbs</b>	<b>400 lbs</b>	<b>400 lbs</b>
<b>30°</b>	<b>450 lbs</b>	<b>450 lbs</b>	<b>450 lbs</b>
<b>45°</b>	<b>550 lbs</b>	<b>550 lbs</b>	<b>550 lbs</b>
<b>60°</b>	<b>600 lbs</b>	<b>600 lbs</b>	<b>600 lbs</b>
<b>80°</b>	<b>600 lbs</b>	<b>600 lbs</b>	<b>600 lbs</b>

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**AUGER SYSTEM** - The auger is stored on the right hand (curb) side of the boom when not in use. Auger release is accomplished by removing a safety pin from the auger storage and pulling a release cable mounted on the rear of the boom. When released, the auger shuttle box is locked to the second boom and has a maximum drilling radius of 19' from the center of rotation. The auger is operated by a separate valve located in the control console.

The auger storage unit is protected from over storage by a magnetic switch that engages the crane overload system. The oil to the auger is supplied by high flow low restriction 3/4" telescoping tubing fixed to the right hand side of the boom.

**WINCH** - The standard winch has an internal clutch brake to prevent unwanted movement of the load. The winch comes equipped with 60' of 7/16" abrasion resistant coated, non-conductive rope with a tensile strength rating of 14,000 lbs.

The rope comes with a galvanized steel thimble on the end and 4,400 lb SWL rated swivel hook is fitted with a safety latch and is connected to the rope by a galvanized high strength lifting shackle. No tools are required to remove the rope from the boom tip and store it on the first boom.

**HYDRAULIC SYSTEM** - The standard open center hydraulic system is composed of a pressurized 25 gallon reservoir with internal baffles and a sight gauge connected to PTO driven pump. The pump is rated at 15 GPM at 2,500 PSI or optionally at 20 GPM at 2,500 PSI and is used to power the outriggers, crane functions, and auger drive. The system is protected from contamination by suction filters and a 10 micron return line filter.

**CYLINDERS** - The elevation, second boom, third boom and outrigger cylinders are of threaded head cap design. All of these cylinders are equipped with check valves to prevent creep down and to lock the booms in position in the event of a hose failure.

**HOSES** - All hoses routed through the booms are non-conductive with swaged end fittings. All exposed boom tip hoses are covered with heavy duty nylon hose protection.

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## SPECIFICATIONS

**ELECTRICAL INSULATION SPECIFICATIONS** - The optional insulated third boom and bucket extension boom are tested and certified for electrical work at 46 kVA in accordance with class "C" requirements.

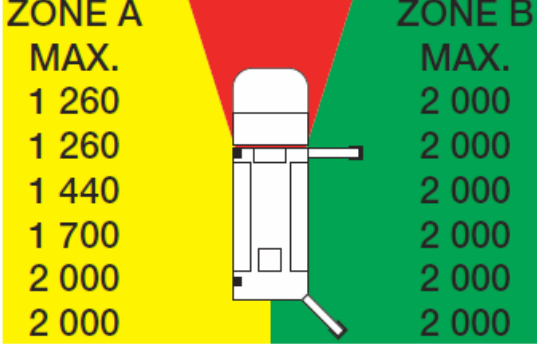
**STANDARDS** - This unit complies with ANSI/SIA A92.2-2001 and ANSI/ASSE A10.31-2006

**MANUALS** - Each unit has an operations, parts, and service manual.

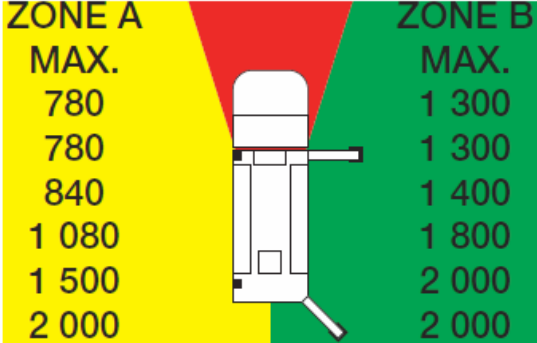
# HERCULES 5042-46 SIGN POST DIGGER DERRICK

## HERCULES DIGGER DERRICK CRANE LOAD CHART

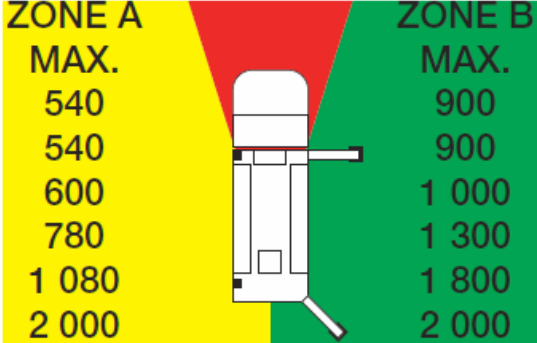
### BOOMS FULLY RETRACTED

BOOM ANGLE	SHEAVE HEIGHT	LOAD RADIUS	ZONE A MAX.		ZONE B MAX.
0	7.0	14.0	1 260		2 000
15	10.6	13.5	1 260		2 000
30	14	12.1	1 440		2 000
45	16.9	9.9	1 700		2 000
60	19.1	7.0	2 000		2 000
80	20.8	2.4	2 000		2 000

### ONE BOOM EXTENDED

BOOM ANGLE	SHEAVE HEIGHT	LOAD RADIUS	ZONE A MAX.		ZONE B MAX.
0	7.0	23.0	780		1 300
15	13.0	22.2	780		1 300
30	18.5	19.9	840		1 400
45	23.3	16.3	1 080		1 800
60	26.9	11.5	1 500		2 000
80	29.7	4.0	2 000		2 000

### TWO BOOMS EXTENDED

BOOM ANGLE	SHEAVE HEIGHT	LOAD RADIUS	ZONE A MAX.		ZONE B MAX.
0	7.0	32.0	540		900
15	15.3	30.9	540		900
30	23.0	27.7	600		1 000
45	29.6	22.6	780		1 300
60	34.7	16.0	1 080		1 800
80	38.5	5.6	2 000		2 000



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## DIMENSIONS AND OPTIONS

### DIMENSIONS

Sheave Height	41'
Working Height	46' Bucket Reach (Option)
Side Reach	34'
Overall Travel Height	121" Without Bucket 130" With Bucket
Overall Length	274"
Overall Width	100"
Lifting Capacity	2,200 lbs
Maximum Lifting Capacity	5,000 lbs
Boom Operation Angles	-15° to +80°



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