

OPERATOR'S REFERENCE GUIDE

090-/200-SERIES



Use this Guide with the Following SPYDERCRANE Models:

URW094

URW095

URW095S

URW205

URW205S

URW295

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Forward

This Operator's Reference Guide for the 090- and 200-Series SPYDERCRANES is supplementary reference guide for operating and sustaining your SPYDERCRANE. Smiley Lifting Solutions relies on customers like you to comment on errors and provide advice on how to further develop this guide.

If you have questions, or concerns, contact SLS Training at:

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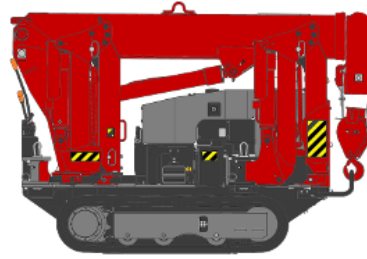
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Basic information about Your SPYDERCRANE

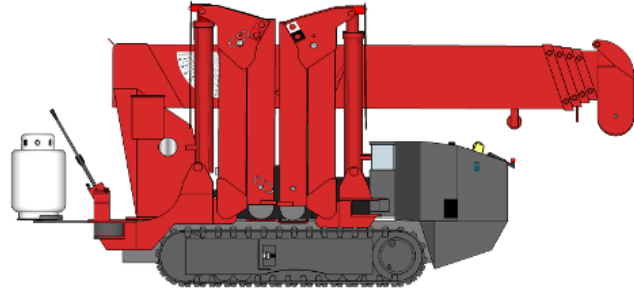
URW094

- ♦ Ultra-Light Lifter
- ♦ Single Powerplant Option
 - ♦ 110V Battery-Electric
- ♦ 2-Part Hook Block



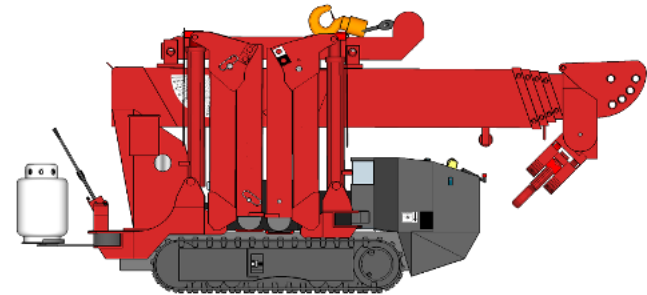
URW095

- ♦ Ultra-Light Lifter, Expanded Capability
- ♦ Powerplant Options:
 - ♦ Gasoline/VPG
 - ♦ Diesel
 - ♦ 110V Battery-Electric
 - ♦ 220V Electric (as an auxiliary)
- ♦ 2-Part and 1-Part Hook Blocks
- ♦ Auxiliary Winch Capable
- ♦ Tilt Jib with Searcher Hook
- ♦ Reduced Boom Length Option (URW095S)



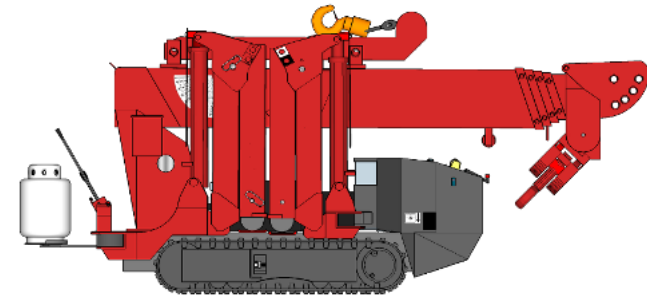
URW205

- ♦ Light/Medium Lifter, Expanded Capacity
- ♦ Powerplant Options:
 - ♦ Gasoline/VPG
 - ♦ Diesel
 - ♦ 110V Battery-Electric
 - ♦ 220V Electric (as an auxiliary)
- ♦ 4-Part and 1-Part Hook Blocks
- ♦ Tilt Jib with Searcher Hook
- ♦ Auxiliary Winch Capable



URW295

- ♦ Light/Medium Lifter, Expanded Capacity
- ♦ Powerplant Options:
 - ♦ Gasoline/VPG
 - ♦ Diesel
 - ♦ 110V Battery-Electric
 - ♦ 220V Electric (as an auxiliary)
- ♦ 4-Part and 1-Part Hook Blocks
- ♦ Tilt Jib with Searcher Hook
- ♦ Auxiliary Winch Capable



How to Find Your SPYDERCRANE's Model Number and Serial Number

Your SPYDERCRANE's Model Number and Serial Number are listed on the Vehicle ID Plate that is installed on the turret.

- ♦ For the URW094, the Vehicle ID Plate is installed on the turret's right side.
- ♦ For the URWs 095-295, the Vehicle ID Plate is installed on the back of the turret.



Identifying Your SPYDERCRANE by its Model Number

The first six digits of your SPYDERCRANE's model number determines the overall model. The five-, six-, or seven-digit suffix of the model number explains the installed powerplants that the SPYDERCRANE is equipped with. For example, a URW295 equipped with a gasoline/vapor-propane powerplant is called the URW295CP1URS/P, while the diesel version of the same SPYDERCRANE is the URW295C4URS.

URW295CP1URS/P

While the operating characteristics are largely the same, the powerplant will drive your SPYDERCRANE's service requirements and schedule.

This is an example of a full model number; in this case, a Mitsubishi Gas/VPG engine-equipped URW295.

Model Number	Description
URW094CBURS	This the 110V Battery-Electric-equipped URW094. This is the ONLY option for the URW094.
URW095CP1URS/P URW205CP1URS/P URW295CP1URS/P	These are 095-/200-Series SPYDERCRANES equipped with the Mitsubishi gasoline engine. Vapor-Propane Gas (VPG) compatible.
URW095CP3URS/P URW205CP3URS/P URW295CP3URS/P	These are 095-/200-Series SPYDERCRANES equipped with the Honda gasoline engine. Vapor-Propane Gas (VPG) compatible. There are some additional design differences between this new model and the more common CP1, like the Outrigger Grounding Switch and the forward-mounted ignition toggle and choke.
URW095C4URS URW205C4URS URW295C4URS	These are 095-/200-Series SPYDERCRANES equipped with a diesel engine.
URW095C4UMRS URW205C4UMRS URW295C4UMRS	An 095-/200-Series SPYDERCRANE equipped with a diesel engine and a 220V auxiliary powerplant.
URW095CBURS URW205CBURS URW295CBURS	An 095-/200-Series SPYDERCRANE equipped the 110V Battery-Electric powerplant.
URW295WBE	A very rare URW295 variant equipped with a wheeled chassis and a 220V Battery-Electric powerplant.

Where to Find More Information for Your SPYDERCRANE

This guide is helpful for SPYDERCRANE operators who are already trained and qualified and only need refresher knowledge on using the SPYDERCRANE. If you require more information on operating or sustaining your SPYDERCRANE, there are a number of additional resources:

UNIC Operator's Manual

This manual is very helpful for technical data on the core SPYDERCRANE vehicle (i.e., not the powerpack), but also contains some basic operator-use information. Machine translated from Japanese, UNIC -supplied manuals can be a challenge to read and understand.

UNIC Parts Catalog

The UNIC Parts Catalog contains line drawings and part identification information for the core SPYDERCRANE (i.e., not the powerpack, or Jib System). Like the Operator's Manual, the Parts Catalog is machine translated from Japanese and can be difficult to use.

Other OEM Manuals

Depending on the SPYDERCRANE's model and installed accessories, you may have additional manuals for the installed powerplant, or powerplants, or other systems like the Auxiliary Winch.

Your SPYDERCRANE's Traveling Specifications and Performance

URW094	
Tracks	Steel-Core Rubber
	5.9 inches x 2.8 inches x 35.4 inches (on-ground) x 2
	208.9 square inch contact patch
Weights and Load-	2,210lbs. (dry)
	5.3 PSI Ground Pressure
Engine	48V Battery System with Electric Motor; 7.3 HP @ 1,800 RPM
Hydraulic Pump	3,130 PSI (Traveling) 2990 PSI (Lifting)
	6.6 gal./minute (4.49 gal. tank capacity)
	1800 RPM, Variable-Delivery Piston Pump
Performance	1.36 MPH maximum

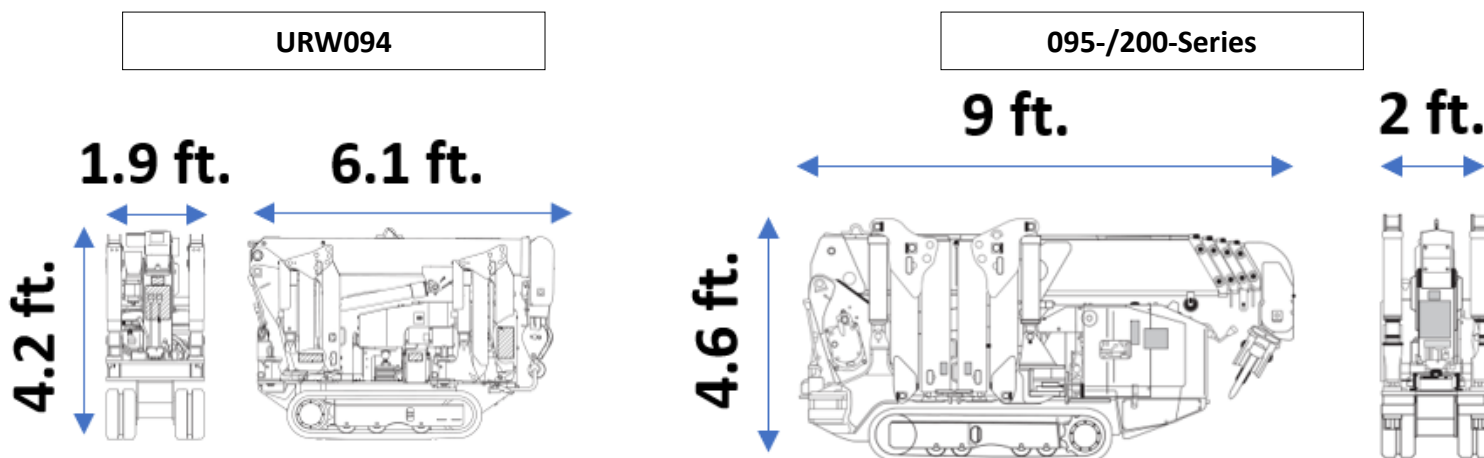
URW095, URW205, URW295 (Common)	
Tracks	Steel-Core Rubber
	7.13 inches x 2.9 inches x 41.3 inches (on-ground)
	588.7 square inch contact patch
Hydraulic Pump	3,130 PSI (Traveling) 2990 PSI (Lifting)
	10 gal./minute (7.13 gal. tank capacity)
	2000 RPM (1,800 RPM for 110V), Variable-Delivery

CP1URS/P & CP3URS/P	
Weights and	4,100lbs. (dry)
	6.96 PSI Ground Pressure
Engine	Gasoline with Vapor Propane Auxiliary (Mitsubishi & Honda); 13HP @ 2000 RPM
Performance	1.4 MPH maximum

C4URS	
Weights and	4,245lbs. (dry)
	7 PSI Ground Pressure
Engine	Diesel (JP8/F24 compatible);
Perfor-	1.5 MPH maximum

CUBRS	
Weights and	
Engine	48V Battery System with Electric
Perfor-	1.3 MPH maximum

Travel/Storage Dimensions



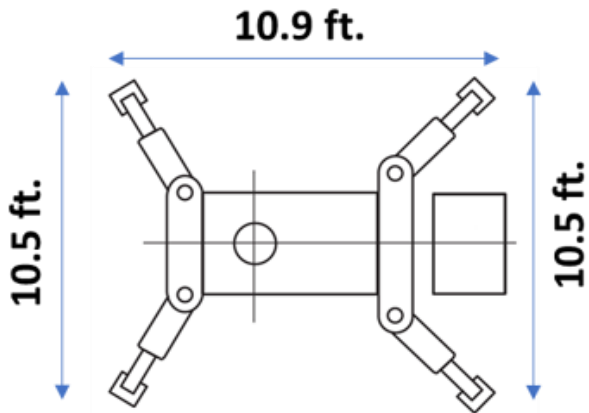
Your SPYDERCRANE's Lifting Specifications and Performance

URW094	
Rated Capacity	1,990 lbs. @ 4.9 ft.
Lifting Height	18.3 ft.
Boom Length	5.6 to 18 ft.
Max Working Radius	16.9 ft.
Max Hoist Speed	27.8 ft./minute (at 3th layer, with 2-Part
Max Boom Extend	12.3 ft. in 17seconds
Max Boom Angle Up	12°/second
Max Slew Speed	2.5 RPM
Slew Range	360° continuous
Contact Patch	Foot: 3.25" x 4" (13 square inches) x 4

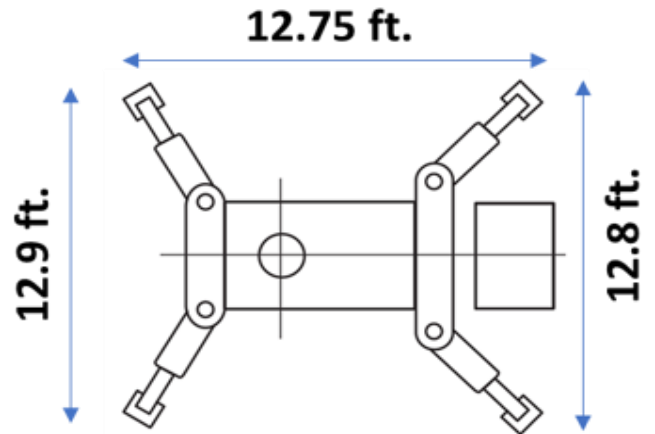
URW095, URW205, URW295	
Rated Capacity (095)	1,990 lbs. @ 4.5 ft. (2-Part Hook Block)
Rated Capacity (205)	5.800 lbs. @ 4.5 ft. (4-Part Hook Block)
Rated Capacity (295)	6.450 lbs. @ 4.5 ft. (4-Part Hook Block)
Lifting Height	28.9 ft.
Boom Length	8.3 to 28.4 ft.
Max Working Radius	27.6 ft.
Max Hoist (2-Part)	63.2 ft./minute (at 4th layer)
Max Hoist (4-Part)	32.8 ft./minute (at 4th layer)
Max Boom Extend	20.1 ft. in 20 seconds
Max Boom Angle Up	7°/second
Max Slew Speed	2.5 RPM
Slew Range	360° continuous
Contact Patch	Foot: 4.75" x 5" (23.75 square inches) x 4

Deployment Footprint Dimensions

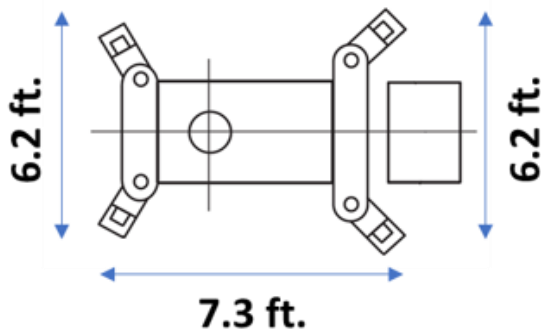
URW094



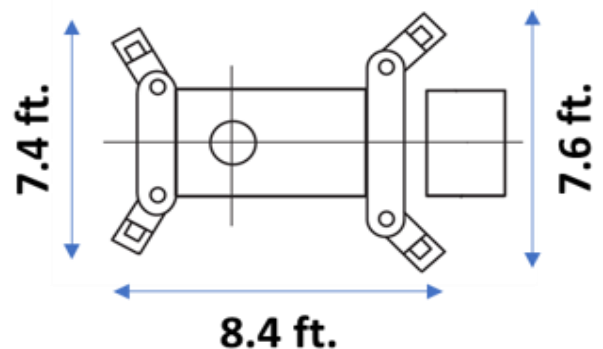
095-/200-Series



MAX-EXT



NOT-MAX



Your SPYDERCRANE's Safeties and Operator Aids

Safeties	
System	Description
Holding Valves	- Each hydraulic cylinder used by the SPYDERCRANE (Extend Cylinders for boom telescoping and outrigger deployment and the Lift Cylinder used to change the angle of the boom) is equipped with a holding valve. - The holding valve prevents the cylinder from collapsing if the engine and/or hydraulic pump are shut down. Essentially, if power or hydraulic pressure is lost, the SPYDERCRANE will "lock up" until pressure is restored. - Additionally, if the hydraulic oil line to a specific cylinder is cut, or bursts, the associated holding valve will lock up ONLY the affected cylinder; allowing the others to function normally.
Locking Pawl	The winch of the SPYDERCRANE is equipped with a locking pawl that lowers and prevents the winch from rotating if hydraulic pressure is lost.
Anti-Two Block Safety	- The Anti-Two Block (A2B) Safety is designed to prevent the hook block from being WINCHED UP (or otherwise raised) into the boom tip. Allowing the hook block to smash into the boom tip ("two-blocking") can result in critical damage to the wire rope, SPYDERCRANE, or the attached load. The A2B Safety prevents this by commanding a CMU CODE 15 Function Kick-Out (FKO) when it is ACTIVATED. The A2B Safety is activated when: - The A2B Switch is OPENED by the hook block being WINCHED UP to the point where it impacts and lifts the A2B Weight, which causes the A2B Switch to spring into the OPEN position. This can also be caused if the boom is extended WITHOUT WINCHING DOWN the hook (to prevent the hook from rising). - The A2B Switch, or the electrical connection to it, is broken.
Minimum Wire Rope Safety	The Minimum Wire Rope Safety is designed to lockout the WINCH DOWN command when activated (CMU CODE 96). Its purpose is to prevent the operator from WINCHING DOWN until all of the wire rope is unspooled off the Wire Rope Drum.
Boom Stored Safety	The Boom Stored Safety is a limit switch that locks out the SLEW command when activated. The Boom Stored Safety is used when storing the hook and boom. The URW094 IS NOT equipped with the Boom Stored Safety.
Safety Latch	- Every hook block on the SPYDERCRANE is equipped with a spring-loaded safety latch that acts as a one-way gate. - When a load is properly rigged and attached, the Safety Latch keeps the rigging from slipping off the hook.

Operator Aids	
System	Description
Turnover Prevention Device	The Turnover Prevention Device (TPD) is a system of load cells and a centralized computer (the TPD Amplifier) that monitors the stability of the SPYDERCRANE and can activate a CMU CODE 15 FKO when it detects that the SPYDERCRANE is nearing its stability limits (do to overloading, or boom movement). The URW094 IS NOT equipped with the TPD.
Boom Angle Indicator	A mechanical operator aid, the Boom Angle Indicator indicates the boom angle of the SPYDERCRANE's boom and can be used in conjunction with visually determining the Boom Stage to calculate the SPYDERCRANE's Working Radius.
Load Chart	The Load Chart displays the various Rated Load Capacities for the SPYDERCRANE, based on its Boom Stage, Working Radius, and Deployment State.
Working Range Chart	The Working Range Chart indicates the approximate position and length of the boom based on its Working Radius, Boom Angle, and Boom Stage.

Your SPYDERCRANE's Safeties and Operator Aids

Audible Alarms and Warning Systems

System	Description
Safety Horn	◆ The Safety Horn is used to warn bystanders and can be activated from: ◆ The Safety Horn Button in the Travel Control Group (next to the Ignition Switch). ◆ The Safety Horn Button in the Outrigger Control Group (next to the Crane/ Outrigger Mode Toggle). ◆ The Remote Safety Horn Button on the Remote Controller.
Voice Mute Switch	◆ The voice mute switch, when set to the OFF position turns off the audible signals from the voice warning systems and audible alerts system. ◆ The voice mute switch does not affect audible signals from the LMI, the TPD, or the outrigger mode alarm.
Outrigger Buzzer Mute Switch	◆ This is a mute switch specifically for the outrigger mode alarm.
TPD Alarm Mute	◆ The TPD alarm mute is an on/off toggle used to mute the alarms associated with the turnover protection device (TPD).

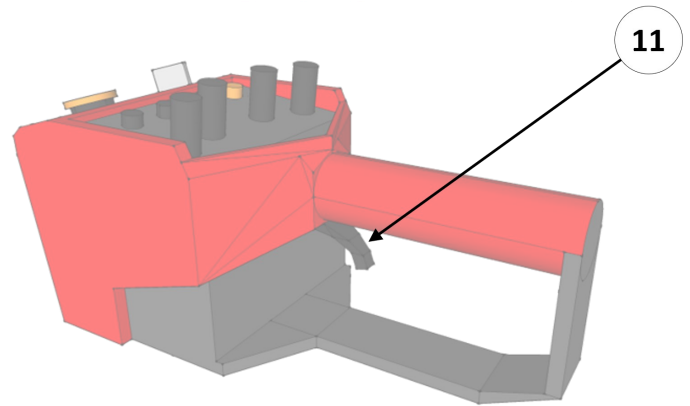
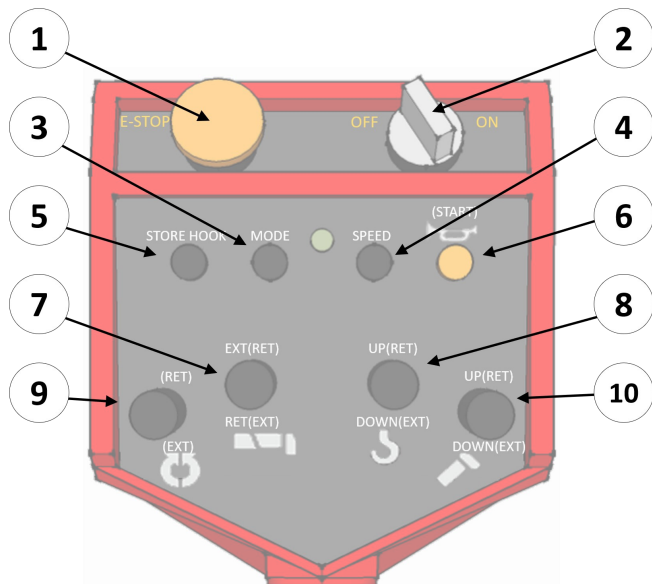
While all of the audible alarms and indicators can be switched off, doing so WILL reduce your situational awareness. Audible alarms and indicators should ONLY be turned off when the SPYDERCRANE is being operated where noise controls are in effect.

Visual Warning Systems

System	Description
Outrigger Mode Indicator	◆ The Outrigger Mode Indicator is the yellow lamp located on the top of the Operator Station and it lights up when the SPYDERCRANE is placed into Outrigger Mode.
Remote Control Indicator	◆ The Remote Control Indicator is the orange lamp located on the top of the Operator Station and it lights up when the SPYDERCRANE is placed into Remote Control.
Run Indicator	◆ The Run Indicator is the green tower lamp that strobes whenever the SPYDERCRANE is running. The Run Indicator is only installed on 095-/200-Series SPYDERCRANES equipped with the 110V Battery-Electric powerpack.
Radio Remote Receiver Status Panel	◆ Located on outward facing panel of the Radio Remote Receiver (bolted to the rear of the Hydraulic Oil Tank), the Status Panel is a series of red and green LEDs that can be used to troubleshoot problems with the SPYDERCRANE's Radio Remote Receiver.
TPD Amplifier Status Panel	◆ Located on the outward facing panel of the TPD Amplifier (located inside the Operator Station and viewable through a sheet metal cutout), the Status Panel is a series of orange, green and red LEDs that can be used to troubleshoot problems with the Turnover Protection Device (TPD). The TPD is only installed on 095-/200-Series SPYDERCRANES.

Unlike the audible alarms and warning systems, the visual warning indicators and lamps CANNOT be turned off.

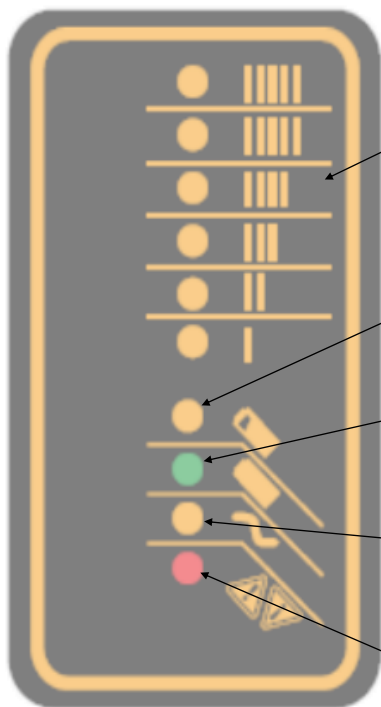
Your SPYDERCRANE's Remote Controller



Remote Controller Map

#	Switch	Function
1	Remote E-Stop	When ACTIVATED, turns OFF the remote controller. The remote controller CANNOT be turned ON until the remote e-stop is deactivated (by rotating the e-stop switch clockwise).
2	Power Key/Switch	2-position switch; turns the Remote Controller ON and OFF.
3	Remote Mode Button	This button will activate the secondary command modes for the SPYDERCRANE. The remote mode button must be held down when selecting command functions. For SPYDERCRANES running on their ICE, holding the remote mode button and commanding a BOOM SLEW CLOCKWISE will turn the engine OFF, holding the remote mode button and commanding a BOOM SLEW COUNTERCLOCKWISE will re-start the engine.
4	Speed Control Button	When pressed, places the SPYDERCRANE into one of three SPEED MODES: ♦ RED (default): Up to 100% engine power can be commanded ♦ Yellow: Up to 50% engine power can be commanded ♦ Green: Up to 10% engine power can be commanded Only used with SPYDERCRANES running propane, gasoline, or diesel.
5	Remote Store Hook Button	When PRESSED AND HELD; commands a HOOK STORE; Control Trigger must also be squeezed to actuate the command.
6	Remote Safety Horn (Start)	Repeatedly PRESS to LINK the Remote Controller with the SPYDERCRANE; also sounds the SPYDERCRANE's horn.
7	Remote Telescope Control Switch	PRESS UP to command BOOM OUT; PRESS DOWN to command BOOM IN.
8	Remote Winch Control Switch	PRESS UP to command WINCH UP; PRESS DOWN to command WINCH DOWN.
9	Remote Slew Control Switch	PRESS UP to command SLEW LEFT; PRESS DOWN to command SLEW RIGHT.
10	Remote Boom Angle Control Switch	PRESS UP to command BOOM UP; BOOM DOWN to command BOOM DOWN.
11	Remote Control Trigger	Squeeze to apply hydraulic function to selected command.

QuiQ Charger for 110V Battery-Electric Powerplants



QuiQ Charger Status Panel

♦ AMMETER LAMPS (Bulk Charge State)

- ♦ Displays approximate battery charge level during the bulk charging phase (up to 60%).
- ♦ If FLASHING, the battery array is overheating and NOT CHARGING.

♦ ABSORPTION PHASE INDICATOR

- ♦ If SOLID YELLOW, batteries are at 80% (Bulk Phase Complete)
- ♦ If FLASHING YELLOW, batteries are disconnected

♦ CHARGE COMPLETION INDICATOR

- ♦ If SOLID GREEN, batteries are charged, charger is in Maintenance Phase
- ♦ If FLASHING GREEN, the absorption charge phase is ended, and the finishing phase is in process.

♦ AC INDICATOR

- ♦ If SOLID AMBER, AC Power input is good
- ♦ If FLASHING AMBER, AC Power Voltage is LOW, check voltage at power point and/or extension cord

♦ FAULT INDICATOR

- ♦ If FLASHING RED, Quiq Charger has an internal error; attempt re-boot.
- ♦ If flashing returns, check the flash code for maintenance support:
 - ♦ Single flash (flash-off-flash...):
 - ♦ This indicates that there is a problem with the connection between the charger and the battery OR the battery array is out of its safe operating temperature range (14- to 122-degrees, Fahrenheit).
 - ♦ Double flash (flash-flash-off-flash-flash-off...):
 - ♦ This indicates that detected battery voltage is out-of-range (less than 36V, or more than 55.2V).
 - ♦ Triple flash:
 - ♦ This indicates a charging timeout, either because the battery array is NOT reaching the required voltage OR the battery charger is overheating. This could be due to a bad connection to the battery array.
 - ♦ Four flashes:
 - ♦ This indicates that the battery array cannot be charged to minimum voltage. This is could be due to a damaged battery cell.
 - ♦ Five flashes:
 - ♦ This indicates that charging has stopped due to overheating within the 110V battery system. This could be due to insufficient airflow around the SPYDERCRANE.
 - ♦ Six flashes:
 - ♦ A battery charger internal fault, attempt unplugging for more than 15 seconds and plugging back in.

The location of the QuiQ Charger varies by SPYDERCRANE:

- ♦ On the URW094, the QuiQ Charger is installed in the open on the roadside of the carrier, on the opposite side of the Hydraulic Oil Tank.
- ♦ On the ICE- and 110V Battery-equipped 095- and 200-series SPYDERCRANES, the QuiQ Charger is tucked in behind the carrier cab sheet metal on the roadside.

Daily Inspection

Component	Check For:	Sat.	Unsat.	N/A
Carrier Rear				
Storage Compartment	Confirm contents and inspect the compartment for damage/corrosion			
Travel Control Group	Damage to individual controls			
1-Part Hook and Holder	Security, corrosion, and damage; check Safety Latch			
Hydraulics/Electrical	Leaks, worn/damaged wiring at turret rear			
Start-Up	Start the SPYDERCRANE, confirm normal start-up			
Crane Mode	Transition SPYDERCRANE to Crane Mode, confirm normal switch-over			
Carrier Roadside				
Outrigger #3	Structural damage, hydraulic leaks			
Left-Side Turret	Structural damage, hydraulic leaks			
Roadside Track Drive	Damage, loose track, hydraulic leaks			
Jib System	Structural damage, missing components			
Outrigger #4	Structural damage, hydraulic leaks			
Lift Cylinder	Check for structural damage, hydraulic leaks			
Winch	Check for structural damage, proper wire rope lay			
Carrier Cab				
Outrigger Mode	Transition SPYDERCRANE to Outrigger Mode, confirm normal switch-over, confirm Outrigger Mode Indicator lights up			
Outrigger Control Group	Check controls, including Outrigger Mode Indicator			
Alarm Switch Position	Ensure all alerts are set to ON, confirm TPD Lockout Alarm, Outrigger Mode Alarm, and Voice Warning System active			
Engine Hours	Record engine run hours			
Remote Control	Transition SPYDERCRANE to Remote Control, confirm normal switch-over, confirm Remote Control Indicator lights up			
A2B Switch/Extension	Inspect A2B Switch, Lanyard, and Weight for damage/corrosion			
Wire Rope Socket	Inspect installed 4-Part Hook Block Wire Rope Socket and/or any Wire Rope Sockets for installed Hook Blocks			
4-Part/2-Part Hook	Damage, corrosion, Safety Latch function			
Boom Tip	Damage, corrosion			
Cab	Check for overall damage to carrier cab sheet metal and installed decals			
Carrier Curbside				
Outrigger #1	Structural damage, hydraulic leaks			
Hydraulic Oil Tank	Structural damage, hydraulic leaks			
Right-Side Turret	Structural damage, hydraulic leaks			
Curbside Track Drive	Damage, loose tracks, hydraulic leaks			
Outrigger #2	Structural damage, hydraulic leaks			

Service Schedule by MODEL and POWERPLANT

094-Series			
Service	Product	Description	Interval
Check/Replace Hydraulic Oil	Shell Tellus 32 NSN:9150-01-336-6589	The URW094 carries 4.5 gallons of hydraulic oil in its tank. Use the sight glass to check the level and replace, as needed.	3 months (first time) Every 500 hours of operation thereafter
Replace Track Drive Wheel Oil	Gear Oil 75W90 NSN: 9150-01-035-5390	Drain and replace the oil within the two Crawler Track Drive Wheels.	Every 1000 hours
Replace Line Filter	P/N: 7405 80036	Replace the in-line hydraulic oil filter.	After 1 year of operation After replacement of pump

095- and 200-Series			
Service	Product	Description	Interval
Check/Replace Hydraulic Oil	Shell Tellus 32 NSN:9150-01-336-6589	The URW0095 and URW2XX carries 7 gallons of hydraulic oil in its tank. Use the sight glass to check the level and replace, as needed.	3 months (first time) Every 500 hours of operation thereafter
Replace Track Drive Wheel Oil	Gear Oil 75W90 NSN: 9150-01-035-5390	Drain and replace the oil within the two Crawler Track Drive Wheels.	Every 1000 hours
Replace Line Filter	P/N: 7405 80036	Replace the in-line hydraulic oil filter.	After 1 year of operation After replacement of pump

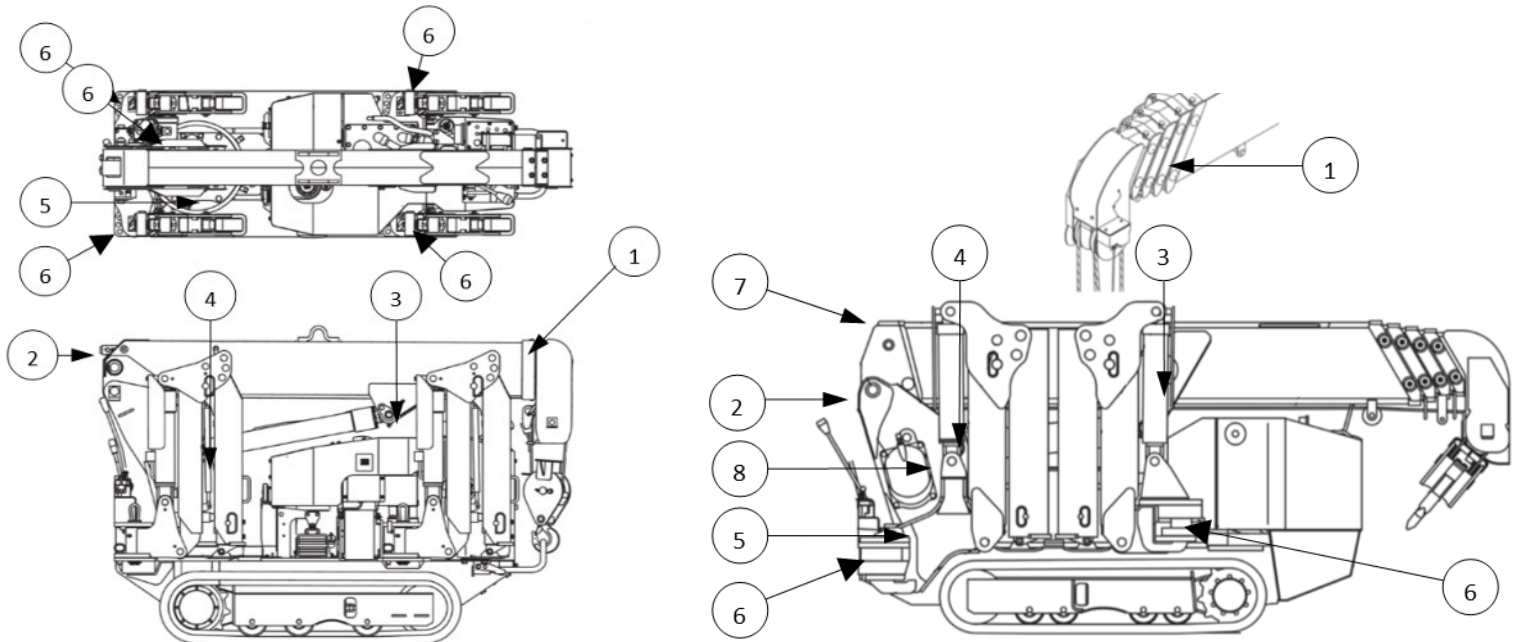
Gasoline (CP1URS and CP3URS)			
Service	Product	Description	Interval
Clean Air Filter	PN: UW6703170	Remove, wash, dry, and install the Air Filter.	3 months (first time) Every 500 hours of operation thereafter
Replace Motor Oil	10W40	Drain and replace the motor oil in the gasoline engine (1.3 quarts).	Every 50 engine hours

Diesel (C4URS)			
Service	Product	Description	Interval
Replace Air Filter		Replace Air Filter.	Every 250 engine hours
Replace Motor Oil and Filter	15W40	Drain and replace the motor oil in the gasoline engine (2.65 quarts).	First 50 engine hours Every 250 engine hours thereafter

110V Battery/Electric and 220V Electric (CBURS, CMURS)		
Service	Description	Interval
The 110V Battery/Electric and 220V Electric SPYDERCRANES use sealed powerpacks and do not require engine/motor maintenance.		

Lubrication Points of Your SPYDERCRANE

094-Series Lubrication			
#	Component	Lubricant	Application
1	Boom Sections	Molybdenum Grease (NLGI 1,2)	Manually apply to exposed boom
2	Boom Hinge Pin Grease Fitting	Molybdenum Grease (NLGI 1,2)	Grease Gun
3	Lift Cylinder Grease Fitting (Upper)	Molybdenum Grease (NLGI 1,2)	Grease Gun
4	Lift Cylinder Grease Fitting (Lower)	Molybdenum Grease (NLGI 1,2)	Grease Gun
5	Slew Gear Grease Fitting	Molybdenum Grease (NLGI 1,2)	Grease Gun
6	Outrigger Deployment Pivot (x4)	Molybdenum Grease (NLGI 1,2)	Grease Gun
X	Wire Rope	Wire Rope Lubricant	Aerosol Spray



095-/200-Series Lubrication			
#	Component	Lubricant	Application
1	Boom Sections	Molybdenum Grease (NLGI 1,2)	Manually apply to exposed boom
2	Boom Hinge Pin Grease Fitting	Molybdenum Grease (NLGI 1,2)	Grease Gun
3	Lift Cylinder Grease Fitting (Upper)	Molybdenum Grease (NLGI 1,2)	Grease Gun
4	Lift Cylinder Grease Fitting (Lower)	Molybdenum Grease (NLGI 1,2)	Grease Gun
5	Slew Gear Grease Fittings (x2)	Molybdenum Grease (NLGI 1,2)	Grease Gun
6	Outrigger Deployment Pivot (x8)	Molybdenum Grease (NLGI 1,2)	Grease Gun
7	Boom Section One Grease Fittings (x2)	Molybdenum Grease (NLGI 1,2)	Grease Gun
8	Winch Gear Grease Fitting	Molybdenum Grease (NLGI 1,2)	Grease Gun
X	Wire Rope	Wire Rope Lubricant	Aerosol Spray

Check/Replace the Hydraulic Oil

Vehicle Start Condition

- ◆ 090-/200-Series
- ◆ Travel Mode
- ◆ Hook Block (any) Installed
- ◆ OFF

Personnel and Time Needed

- ◆ 1 Person
- ◆ Standard PPE
- ◆ <5 minutes

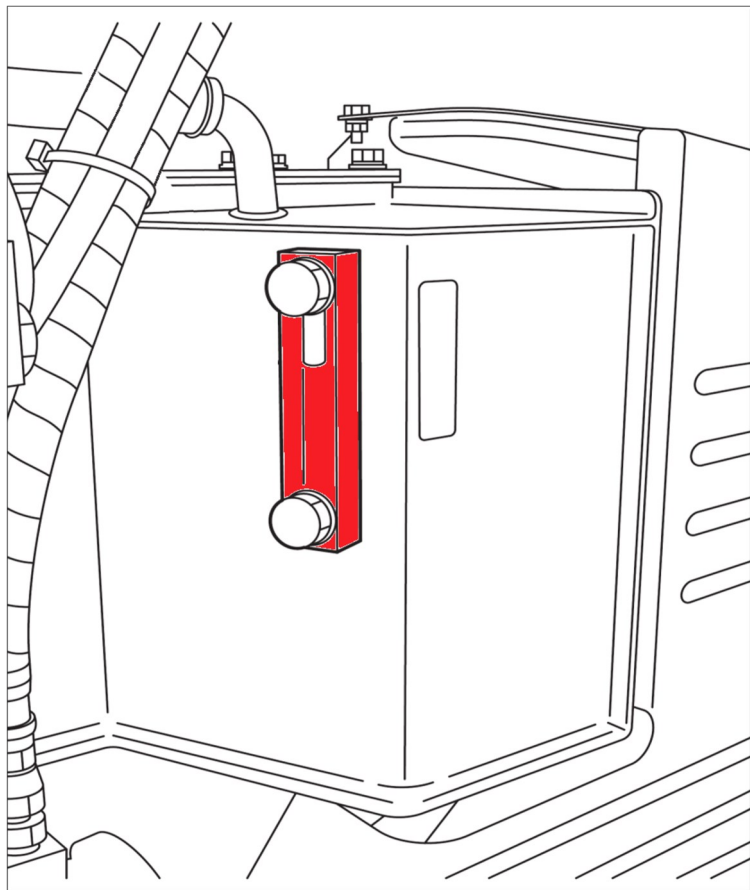
Tools and Equipment Needed

- ◆ Hydraulic Oil (4.5 gal for 094 and 7.14 gal for 095- and 200-Series)

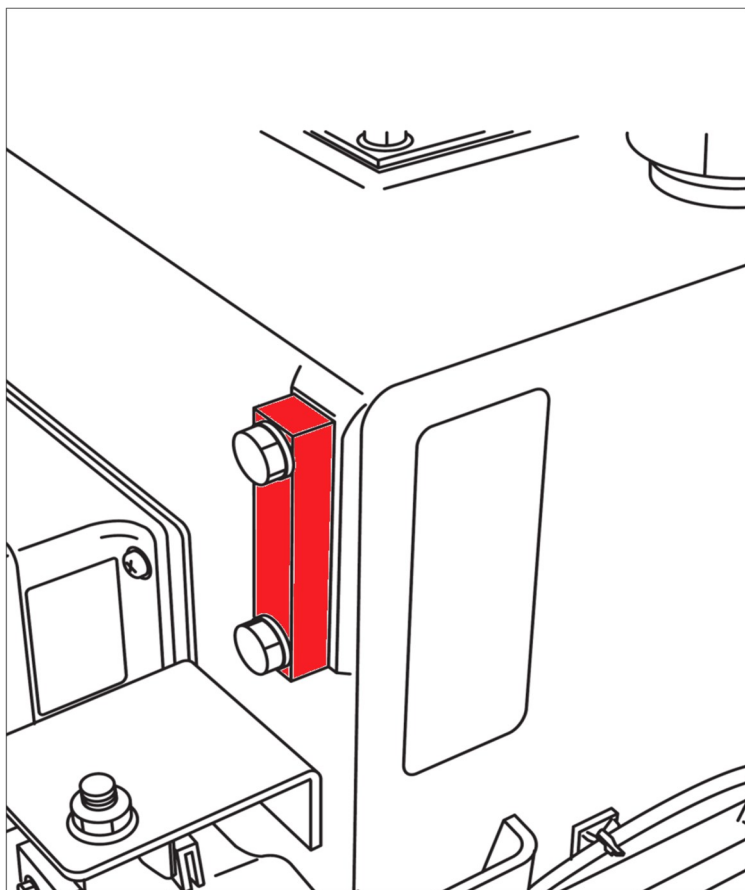
WARNING: You **MUST** leave the SPYDERCRANE OFF and allow enough time for the all of the onboard fluids (including the hydraulic oil) to return to ambient temperature before performing ANY maintenance.

NOTE: When checking or filling the Hydraulic Oil Tank, the SPYDERCRANE MUST be in Travel Mode with the outriggers and boom in their stored conditions.

1. Unlock and rotate (but do not pre-deploy) Outriggers #1 and #2 to expose the Hydraulic Oil Tank; check the oil level using the attached Sight Glass (Fig. 1 and 2).
2. To add oil, unscrew and remove the Hydraulic Oil Tank Cap and add oil until the Sight Glass reads a full tank.
3. Replace Hydraulic Oil Tank Cap.



(Fig. 1): The 4.5 gal Hydraulic Oil Tank for URW094, the Sight Glass has been highlighted.



(Fig. 2): The 7.14 gal Hydraulic Oil Tank for 095- and 200-Series SPYDERCRANES, the Sight Glass has been highlighted.

Replace the Hydraulic Line Filter

Vehicle Start Condition

- ♦ 090-/200-Series
- ♦ Travel Mode
- ♦ Hook Block (any) Installed
- ♦ OFF

Personnel and Time Needed

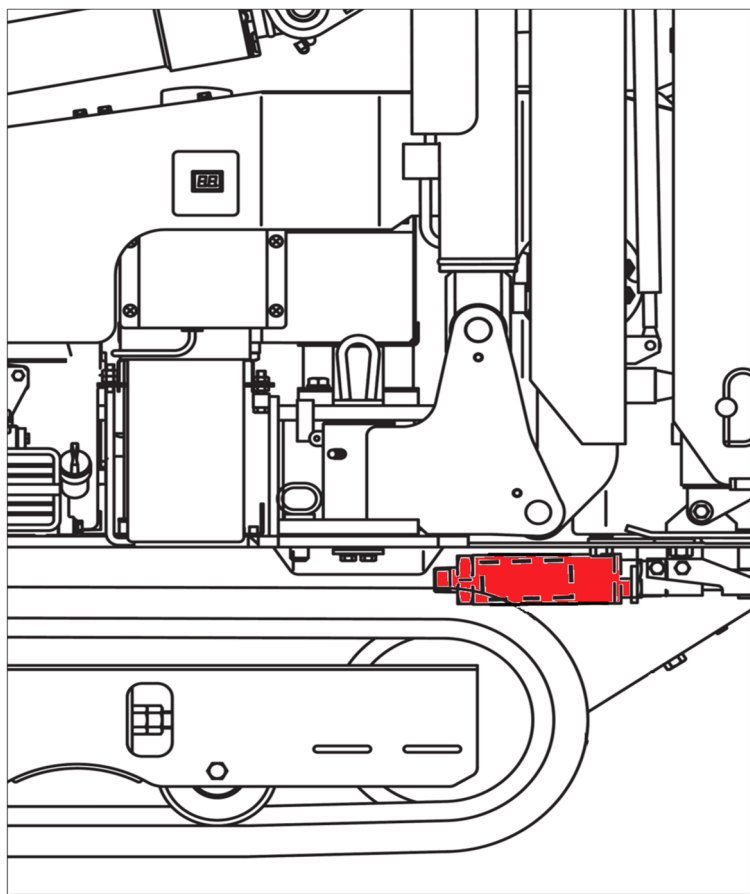
- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

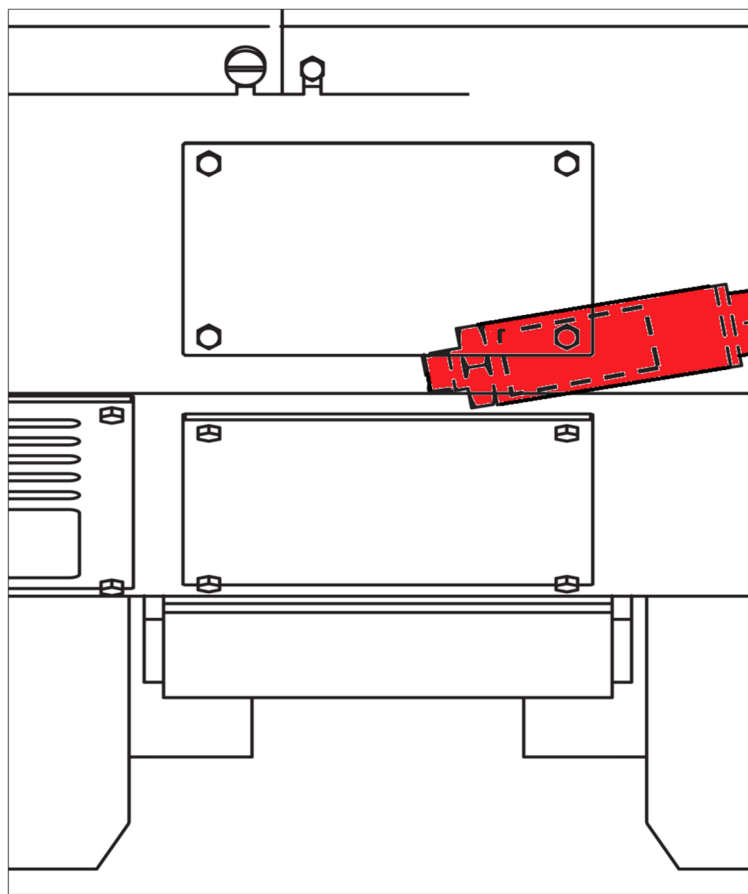
- ♦ New Hydraulic Line Filter
- ♦ 10mm
- ♦ 32mm

WARNING: You **MUST** leave the **SPYDERCRANE OFF** and allow enough time for the all of the onboard fluids (including the hydraulic oil) to return to ambient temperature before performing ANY maintenance.

1. Remove the Line Filter Access Cover bolts (10mm).
2. Unscrew the Line Filter , first at the output side, then the input side (Fig. 1 and 2).
3. After removing the Line Filter from the input side of the hydraulic oil line, prop the hydraulic oil line to keep oil in the line from spilling.
4. Install the new Line Filter and replace the access cover.



(Fig. 1): The Hydraulic In-Line Filter for the URW094, the filter is attached to the bottom of the Hydraulic Control Valve, behind an access panel.



(Fig. 2): The Hydraulic In-Line Filter for the 095- and 200-Series, the filter is attached to the bottom of the Hydraulic Control Valve, behind an access panel.

Check/Adjust Crawler Track Tension

Vehicle Start Condition

- ♦ 090-/200-Series
- ♦ Travel Mode
- ♦ OFF

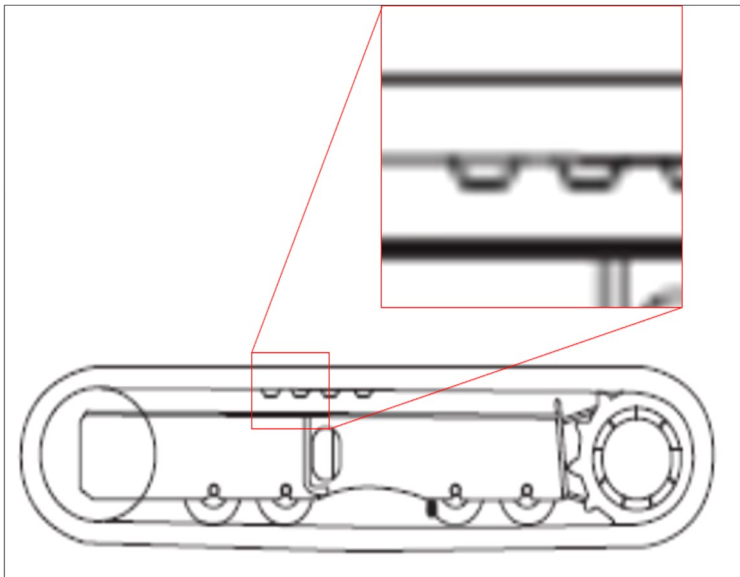
Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

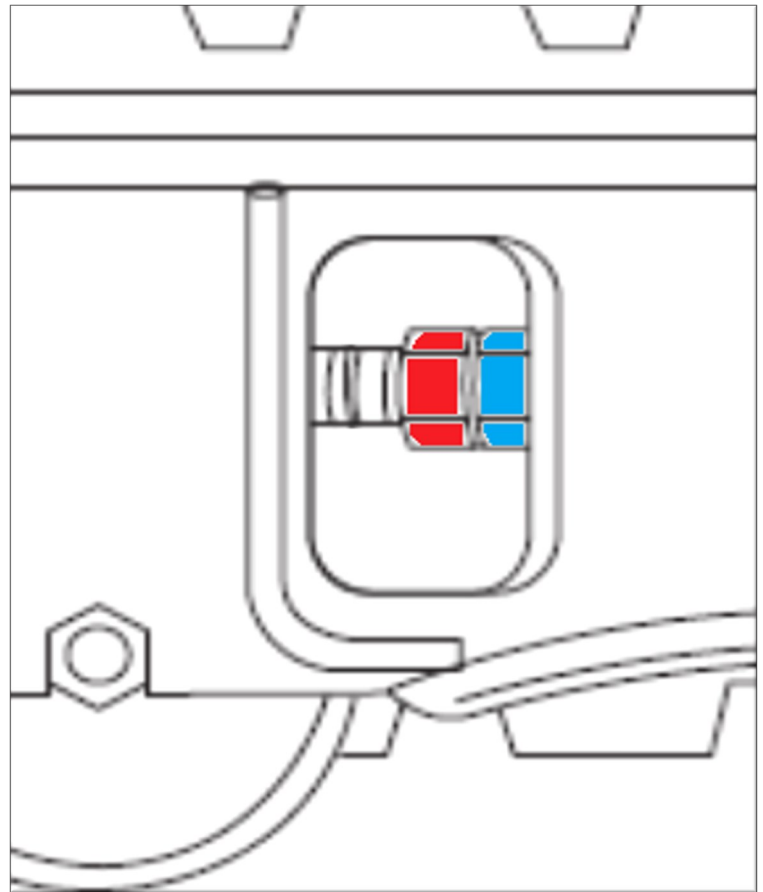
Tools and Equipment Needed

- ♦ Metric Ruler, or 10mm and 15mm gauge
- ♦ 32mm open-end box wrench

1. With the SPYDERCRANE OFF and resting on its tracks, measure the distance between the inside crawler track teeth and the top of the Roller Truck (Fig. 1).
 - If the crawler tracks are properly tensioned, the gap between the bottom of the teeth and the top of the Truck Roller should be between 15mm to 17mm.
 - If the gap is 10mm, or less, they MUST BE tensioned.
2. To tension the crawler tracks, first find the Crawler Track Tensioner Access Port on Roller Truck, then insert a 32mm open-end box wrench to loosen the Jam Nut (the nut nearest the Drive Wheel) and then turn the Tension Nut (the nut nearest the Idler Wheel) until the tracks are properly tensioned (Fig. 2).
 - Turning the Tension Nut CCW will TIGHTEN the tracks, CW will LOOSEN the tracks.
3. When the Crawler Track has been properly tensioned, tighten the Jam Nut to secure the Tension Nut.



(Fig. 1): Measure the gap between the crawler track teeth and the top of the Roller Truck as close to the middle of the Roller Truck as possible.



(Fig. 2): The Jam Nut (blue) is nearest the Drive Wheel, the Tension Nut (ref) is nearest the Idler Wheel.

Replace Crawler Track Drive Wheel Oil

Vehicle Start Condition

- ♦ 090-/200-Series
- ♦ Deployed
- ♦ Hook and Boom STORED

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

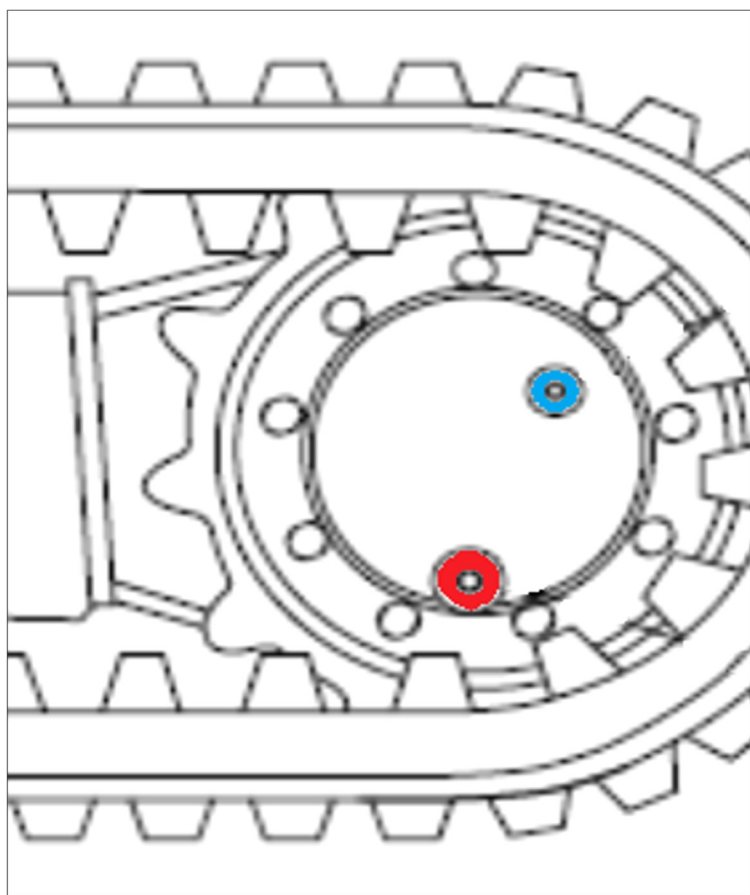
Tools and Equipment Needed

- ♦ Hydraulic Oil
- ♦ 8mm Allen Wrench
- ♦ PTFE Tape

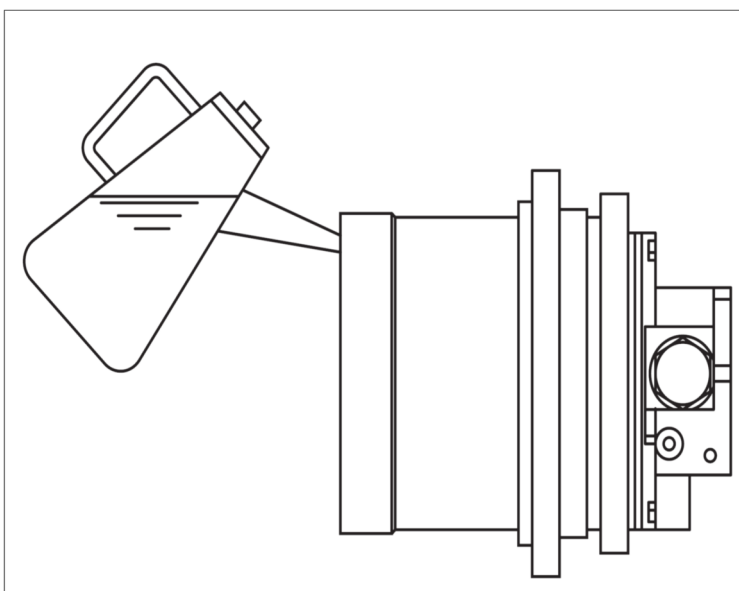
1. Place the SPYDERCRANE into Travel Mode (while it is still deployed on its outriggers) and turn the Drive Wheels until they are oriented so that the Drain Port is at the 6 o'clock position (Fig. 1).

WARNING: You MUST leave the SPYDERCRANE OFF and allow enough time for the all of the onboard fluids (including the hydraulic oil to return to ambient temperature before performing ANY maintenance.

2. Remove the Fill Port Plug to bleed any air in the Drive Wheel (8mm).
3. Remove the Drain Port Plug to drain oil out of the Drive Wheel (8mm), inspect the O-ring of the plug, replace the PTFE tape on the threads, and replace the plug.
4. Add oil through the Fill Port until the Drive Wheel is filled (Fig. 2).
5. Inspect the O-ring of the Fill Port Plug, replace the PTFE on the threads, and replace the plug.



(Fig. 1): The larger Drain Port should be at the 6 o'clock position before it's plug is removed.



(Fig. 2): After replacing the Drain Port Plug, add oil through the Fill Port until the Drive Wheel is filled.

Check/Replace Motor Oil (Gas Engine)

Vehicle Start Condition

- ♦ 095-/200-Series
 - ♦ (CP1, CP3)
- ♦ Travel Mode
- ♦ OFF

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <15 minutes

Tools and Equipment Needed

- ♦ Motor Oil (1.3 quarts)

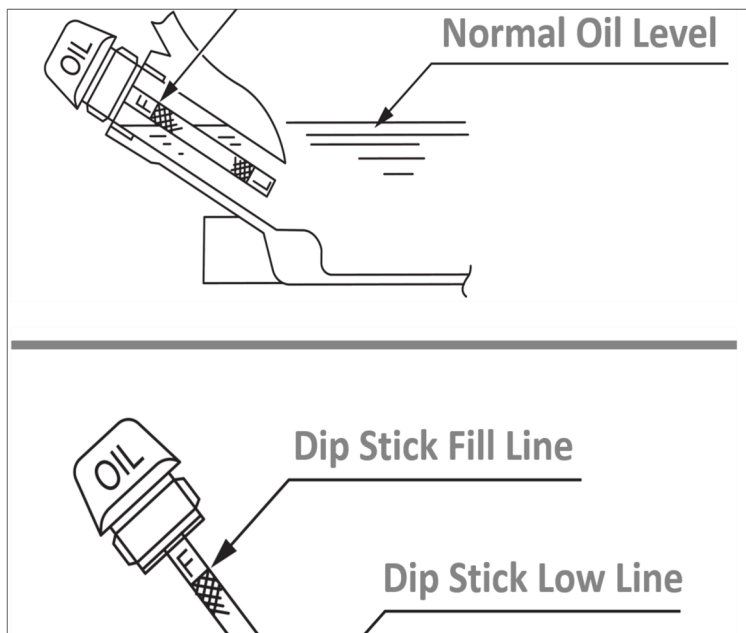
WARNING: You **MUST** leave the SPYDERCRANE **OFF** and allow enough time for the all of the onboard fluids to return to ambient temperature before performing **ANY** maintenance.

Check the Motor Oil

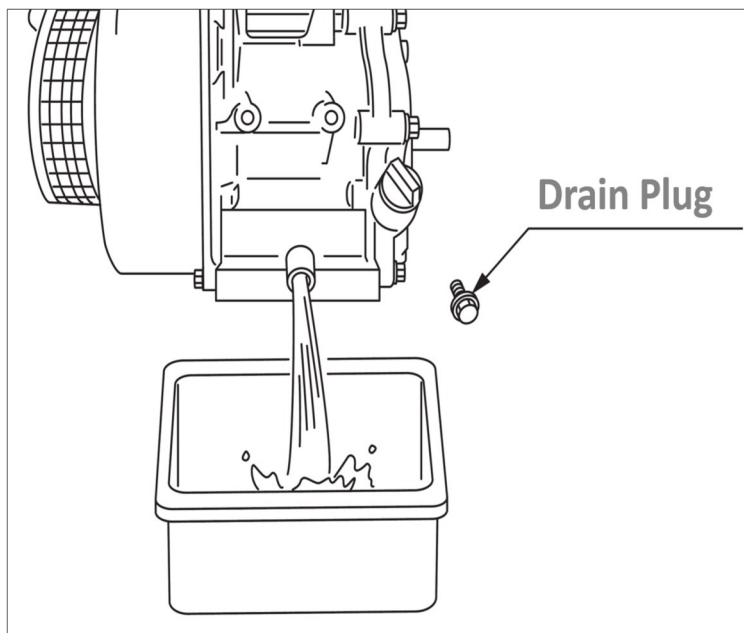
1. Run the engine of the SPYDERCRANE for 2 minutes, shut it down, and wait another 5 minutes before checking the motor oil level.
2. Remove the dip stick, from the Fill Port clean it with a rag and insert back into the fill port (but, DO NOT screw it in)(Fig.1).
3. Remove the dip stick and check the oil level, using the gauge on the stick (Fig. 1).

Replace the Motor Oil

1. Remove the Drain Plug and drain all of the oil in the engine (Fig. 2).
2. Replace the Drain plug, and add oil through the Fill Port.



(Fig. 1): After cleaning the dip stick, re-insert it into the engine and remove to check the engine oil.



(Fig. 2): Drain the Engine Oil by removing the Drain Plug.

Check/Replace Motor Oil and Filter (Diesel Engine)

Vehicle Start Condition

- ♦ 095-/200-Series
 - ♦ (C4)
- ♦ Travel Mode
- ♦ OFF

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <15 minutes

Tools and Equipment Needed

- ♦ Motor Oil (2.65 quarts)
- ♦ Oil Filter

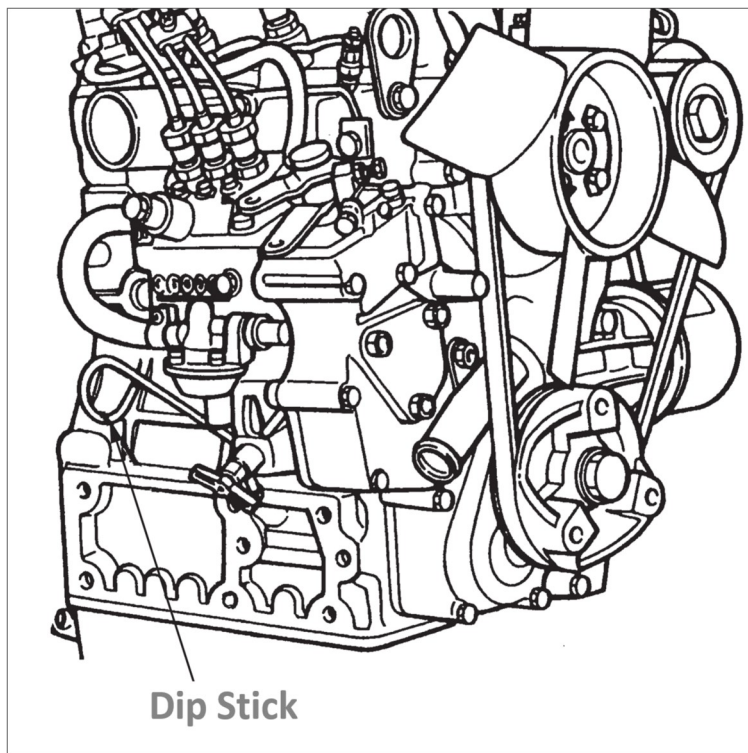
WARNING: You **MUST** leave the SPYDERCRANE OFF and allow enough time for the all of the onboard fluids to return to ambient temperature before performing ANY maintenance.

Check the Motor Oil

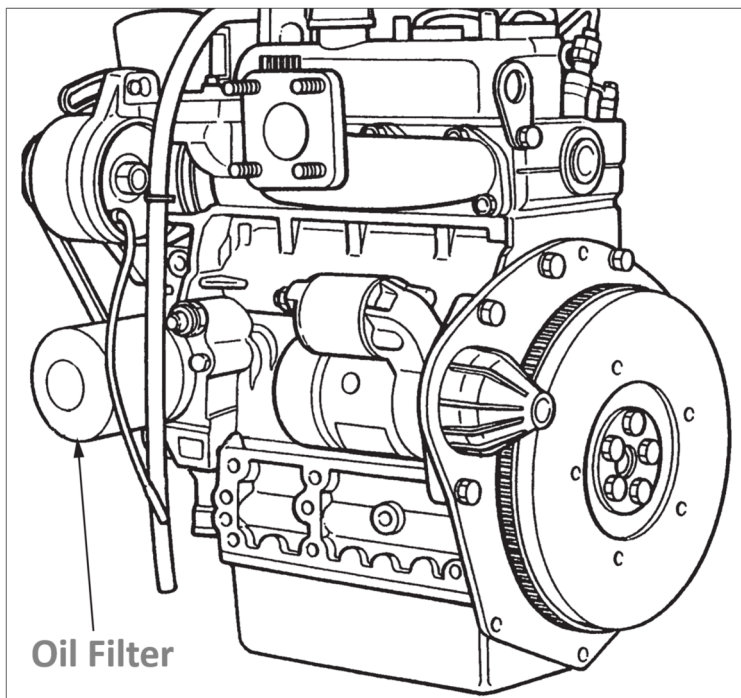
1. Run the engine of the SPYDERCRANE for 2 minutes, shut it down, and wait another 5 minutes before checking the motor oil level.
2. Remove the dip stick, from the Fill Port clean it with a rag and insert back into the fill port (but, DO NOT screw it in) (Fig. 1).
3. Remove the dip stick and check the oil level, using the gauge on the stick.

Replace the Motor Oil

1. Remove the Drain Plug and drain all of the oil in the engine.
2. Replace the Oil Filter, making sure to lubricate the O-ring of the new filter with a thin layer of oil before spinning it onto the engine.
3. Replace Drain Plug, add oil through Fill Port, and replace and secure dip stick (Fig.2).



(Fig. 1): After cleaning the dip stick, re-insert it into the engine and remove to check the engine oil.



(Fig. 2): After draining the engine oil, replace the Oil Filter.

Clean/Replace Air Filter

Vehicle Start Condition

- ♦ 095-/200-Series
- ♦ (CP1, CP3, C4)
- ♦ Travel Mode
- ♦ OFF

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <15 minutes

Tools and Equipment Needed

- ♦ Air Filter (Diesel)

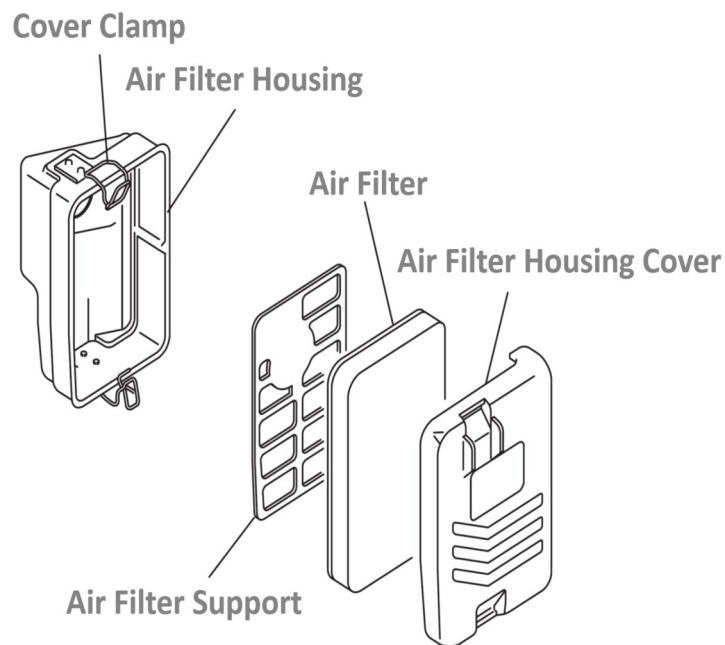
WARNING: You **MUST** leave the SPYDERCRANE OFF and allow enough time for the all of the onboard fluids to return to ambient temperature before performing ANY maintenance.

Clean and Install Air Filter (Gasoline Engine)

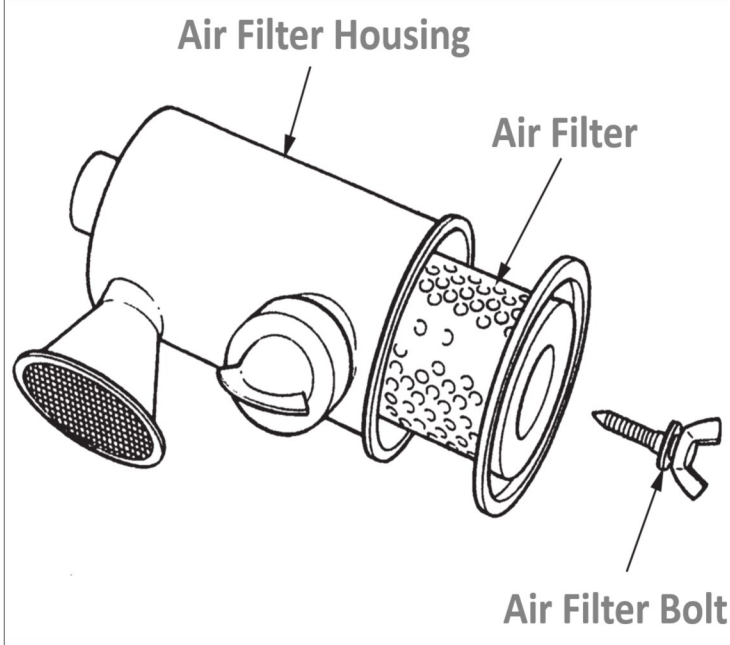
1. Access the Air Filter Housing through the access panel on the front of the SPYDERCRANE Carrier Cab.
2. Un-clamp and remove the Air Filter Housing and remove the Air Filter (Fig. 1).
3. Wash the Air Filter with clean water and allow to completely dry.
4. Install the Air Filter and clamp the Air Filter Housing Cover closed (Fig. 1).

Remove and Replace the Air Filter (Diesel Engine)

1. Access the Air Filter Housing through the access panel on the front of the SPYDERCRANE Carrier Cab.
2. Remove the Air Filter Bolt and pull the entire Air Filter element out of the housing (Fig. 2).
3. Insert new Air Filter element and replace Air Filter Bolt (Fig. 2).



(Fig. 1): After cleaning the dip stick, re-insert it into the engine and remove to check the engine oil.



(Fig. 2): Drain the Engine Oil by removing the Drain Plug.

Hook and Boom Deployment Procedure

Vehicle Start Condition

- ♦ 090-/200-Series
- ♦ Deployed (any state)
- ♦ Hook Block (any) Installed
- ♦ ON

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ None

NOTE: Deploying the Hook and Boom is the FIRST task you must accomplish after deploying your SPYDERCRANE's Outriggers.

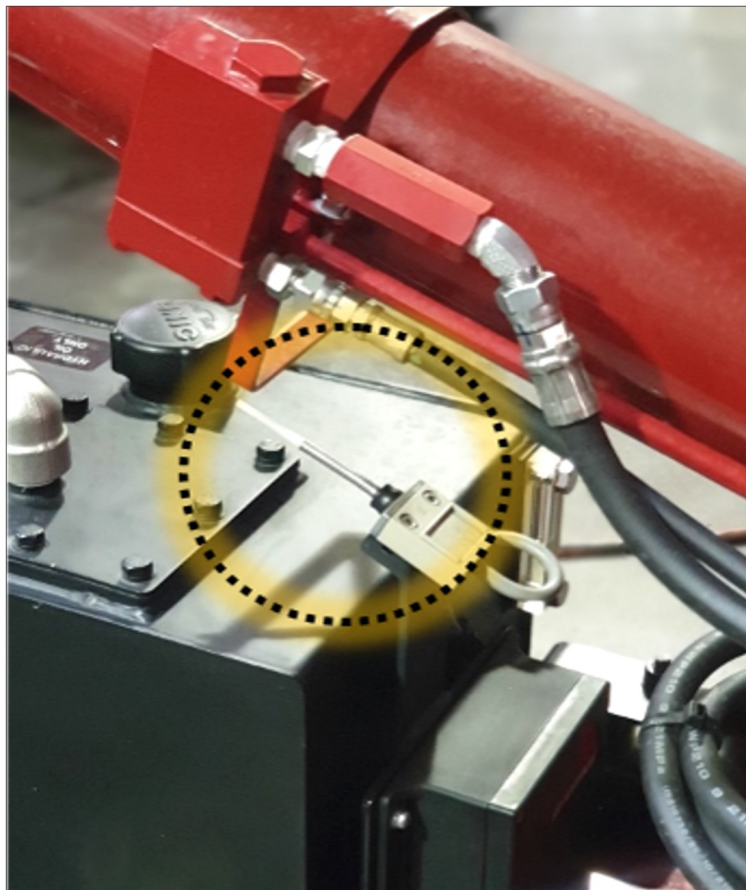
1. Command a WINCH DOWN until the A2B Weight is suspended freely from the A2B Switch at the Boom Tip (Fig. 1).

NOTE: Not all Hook Blocks store flat against the Boom Tip Sheave Assembly; some 1- and 2-Part Hook Blocks are attached to the Hook Storage Bracket on the front of the Carrier Cab. If the Hook Block is stored on the Hook Storage Bracket, or are otherwise tied off, you will need to release them BEFORE WINCHING DOWN.

2. Command a BOOM UP until the Boom Stored Safety is unloaded.
3. Command the SPYDERCRANE normally.



(Fig. 1): You DO NOT need to WINCH DOWN quite this low; once the A2B Weight is pulling closed the A2B Switch, the hook is deployed.



(Fig. 2): To deactivate the Boom Stored Safety, command a BOOM UP.

Hook and Boom Storage Procedure

Vehicle Start Condition

- ♦ 090-/200-Series
- ♦ Deployed (any state)
- ♦ Hook Block (any) Installed
- ♦ ON

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ None

1. SLEW the boom until it is in-between Outrigger #1 and the carrier front-end (Fig.1).
2. BOOM DOWN and IN until the boom is fully retracted and at its lowest possible boom angle.
3. Confirm that the Lift Cylinder Bracket is to the LEFT of the Boom Stored Safety.
4. SLEW COUNTERCLOCKWISE until the Lift Cylinder Bracket activates the Boom Stored Safety and disables the SLEW function.

CAUTION: The URW094 DOES NOT have a Boom Stored Safety; simply line up the boom with the Boom Stored Decal on the top of the SPYDERCRANE's carrier (Fig. 2).

5. Press and hold the Hook Store Switch until the hook is locked firmly against the Boom Tip.

NOTE: If you ARE NOT using a 4-Part Hook Block AND your SPYDERCRANE is equipped with Hook Storage Bracket, you MUST attach the hook to the bracket BEFORE commanding a Hook Store; if your SPYDERCRANE is NOT equipped, raise the hook block as high as possible (triggering the A2B System) and tie off the hook against the Boom Tip.



(Fig. 1): Maneuver the boom until it is to the LEFT of the Boom Stored Safety and the Boom Stored Decal on the top of the carrier.



(Fig. 2): The URW094 DOES NOT have a Boom Stored Switch, simply line up the boom with the Boom Stored Decal

Hook Block Grounding Procedure

Vehicle Start Condition

- ♦ 090-/200-Series
- ♦ Deployed (any state)
- ♦ Hook Block (any) Installed
- ♦ ON

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ None

1. Deploy the SPYDERCRANE's hook and boom, using the Deploy the Hook and Boom Procedure.
2. BOOM UP to around 10-degrees (to provide vertical working space).
3. BOOM OUT to at least Stage 2 (so that the hook block clears the SPYDERCRANE).
4. WINCH DOWN to lower the hook block until it is just above the ground (see Fig. 1).
5. BOOM DOWN to lay the hook block down, continue BOOMING DOWN until hook block is completely grounded and the wire rope is unloaded (see Fig. 2).



(Fig. 1): WINCH DOWN to lower the hook to the ground, but DO NOT ground the hook via WINCH DOWN.



(Fig. 2): BOOM DOWN to actually place the hook block on the ground.

Hook Block Un-Grounding Procedure

Vehicle Start Condition

- ♦ 090-/200-Series
- ♦ Deployed (any state)
- ♦ Hook Block Installed but Grounded
- ♦ ON

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ None

1. BOOM UP until the hook block is off the ground (see Fig. 1).

NOTE: If there is too much slack in the wire rope to unground the hook block using BOOM UP, also use BOOM OUT but DO NOT WINCH UP until the hook block is ungrounded.

2. Once the hook block is ungrounded, WINCH UP the hook block normally (see Fig. 2).



(Fig. 1): NEVER lift the hook block off the ground via WINCHING UP; ALWAYS BOOM UP/BOOM OUT to un-ground the hook block.



(Fig. 2): Once the hook block is off the ground and there is pressure on the wire rope, you may WINCH UP the hook block.

Install the 1-Part Hook Block (to the Boom)

Vehicle Start Condition

- ♦ 095-/200-Series
- ♦ Deployed (any state)
- ♦ Boom Deployed, No Hook Block Installed
- ♦ OFF

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ 13mm wrench
- ♦ Electrical Tape
- ♦ 8mm Spacer
- ♦ .25 in punch and hammer (optional)

1. Examine the end of the wire rope and ensure it is not splayed; if the end IS splayed, use electrical tape to secure.
2. Feed the end through the A2B Weight hanging from the Boom Tip A2B Switch, ensuring the end is passing DOWN through the A2B Weight (Fig. 1).
3. Feed the end through the narrow side of the becket of the Wire Rope Socket; follow the direction of the arrow embossed on the side of the becket (Fig 2).
4. Feed wire rope through the becket until two feet of wire rope is coming out of the wide side of the becket.
5. Grasping the end, make a large loop by feeding the end back up through the wide side of the becket
6. Insert the Wire Rope Socket Wedge into the wide side of the becket so that the narrow end of the wedge is pressing against both sides of the wire rope
7. Collapse the loop by pulling on both sides of the wire rope so that the Wire Rope Wedge is held fast and there is AT LEAST 6 inches of end coming out of the narrow side of the becket.
8. Clip the 8mm Spacer to the end using the Wire Rope Clip, ensuring that the U-bolt of the Wire Rope Clip is on the end and the saddle of the Wire Rope Clip is on the spacer (Fig. 3)(Fig. 4).
9. Tighten the 13mm nuts of the Wire Rope Clip to complete the installation.



(Fig. 1): The end passes over the right-hand Boom Tip Sheave and through the A2B Weight on its way to the 1-Part Hook Block.



(Fig. 2): Push the end through the top of the becket of the Wire Rope Socket of the 1-Part Hook Block (follow the arrow).



(Fig. 3): When assembling the wire rope clip, make sure to place the U-bolt on the actual wire rope and the saddle on the 8mm spacer.



(Fig. 4): Before closing the loop and seating the wedge, make sure you have AT LEAST 6" of end "tail" ABOVE the becket.

Install the 2-Part Hook Block (to the Boom)

Vehicle Start Condition

- ♦ 094-/095-Series
- ♦ Deployed (any state)
- ♦ Boom Deployed, No Hook Block Installed
- ♦ OFF

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ 17mm wrench
- ♦ 13mm wrench
- ♦ Electrical Tape
- ♦ 8mm Spacer
- ♦ .25 in punch and hammer (optional)

Note: The URW094 uses 7mm wire rope, while the larger 095- and 200-Series SPYDERCRANES use 8mm wire rope.

Note: The Wire Rope Socket for the 2-Part Hook is the same as the one for the 1-Part Hook. For the 2-Part Hook, the Wire Rope Socket is mounted to the boom tip while for the 1-Part Hook, it is installed to the top of the hook body,

1. Reeve the wire rope through the 2-Part Hook Block, from front to back and UP through the A2B Weight (Fig. 1).
2. Feed the end through the narrow side of the becket of the Wire Rope Socket; follow the direction of the arrow embossed on the side of the becket (Fig 2).
3. Feed wire rope through the becket until two feet of wire rope is coming out of the wide side of the becket.
4. Grasping the end, make a large loop by feeding the end back through the becket.
5. Insert the Wire Rope Wedge into the wide side of the becket so that the wedge is pressing against both sides of the wire rope.
6. Collapse the loop by pulling on both sides of the wire rope so that the Wire Rope Wedge is held fast and there is AT LEAST 6 inches of end coming out of the narrow side of the becket.
7. Clip the (7)8mm Spacer to the end using the Wire Rope Clip, ensuring that the U-bolt of the Wire Rope Clip is on the end and the saddle of the Wire Rope Clip is on the spacer (Fig. 3).
8. Tighten the 13mm nuts of the Wire Rope Clip (Fig. 4).

Note: This procedure assumes that the Wire Rope Socket is already installed. If the Wire Rope Socket IS NOT installed:

1. Orient the Wire Rope Socket so that the embossed arrow is facing OUT.
2. Ensure that the wire rope is passing through the A2B Weight from the 2-Part Hook Block.
3. Ensure that that the wire rope is NOT twisted.
4. Install the Wire Rope Socket using the Socket Pin and Retaining Bolt (17mm).



(Fig. 1): The 94- and 95-Series have slightly different 2-Part Hook Block designs, but the procedure is the same for both.



(Fig. 2): The Wire Rope Socket for the 2-Part Hook Block is the same as the 1-Part Hook Block, only uninstalled from the hook body



(Fig. 3): When assembling the wire rope clip, make sure to place the U-bolt on the actual wire rope and the saddle on the 8mm spacer.



(Fig. 4.): Before closing the loop and seating the wedge, make sure you have AT LEAST 6" of end "tail" ABOVE the becket.

Install the 4-Part Hook Block

Vehicle Start Condition

- ♦ 200-Series
- ♦ Deployed (any state)
- ♦ Boom Deployed, No Hook Block Installed
- ♦ Wire Rope Socket Un-Installed
- ♦ OFF

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <10 minutes

Tools and Equipment Needed

- ♦ 13mm wrench
- ♦ 19mm wrench
- ♦ Electrical Tape
- ♦ 8mm Spacer
- ♦ .25 in punch and hammer (optional)

1. Ensure that the wire rope is properly reeved, and 18 ft of wire rope extends over the top of the right-hand sheave of the Boom Tip.
2. Place the 4-Part Hook Block directly underneath the Boom Tip and oriented so that the A2B Weight Ledge of the block is underneath the A2B Weight suspended from the Boom Tip.
3. Reeve the 4-Part Hook Block (TB 1).
4. Lay the Wire Rope Socket on the ground so the embossed arrow is face up.
5. Feed the wire rope through the outside channel of the Wire Rope Socket until it emerges from the bottom of the Wire Rope Socket's becket (following the embossed arrow) and leave approximately 3 feet of excess.
6. Turn the wire rope back on itself, forming a loop. Feed it back along the inside channel of the Wire Rope Socket until it reaches the end of the channel and bottoms out (the taped end should be visible through the window cutout at the top of the socket).
7. Insert the Wire Rope Wedge into the wide side of the becket so that the wedge is pressing against both side of the wire rope.
8. Collapse the loop and seat the wedge by pulling on the end of the rope, ensuring that the end remains visible in the window cutout.

NOTE: During the reeving and installation of the wire rope into the Wire Rope Socket, ensure that the wire rope IS NOT twisted.

9. Install the Wire Rope Clip so that the saddle of the clip is on the same side as the embossed arrow (Fig. 3).
10. Pick up and orient the assembled Wire Rope Socket so that the embossed arrow is facing OUT (to the right-side of the Boom Tip).
11. Ensure that parts of wire rope are NOT tangled before installation.
12. Slide the Wire Rope Socket into the Wire Rope Socket Housing, tilting the tower of the Wire Rope Socket forward about 20 degrees.
13. The Wire Rope Socket is properly aligned when the Wire Rope Clip is visible through the window cutout in the Boom Tip. (Fig. 4)
14. Insert the Wire Rope Socket Pin to hold the Wire Rope Socket in-place.
15. Install the Wire Rope Socket Pin Bolt (19mm).
16. Tighten the nuts of the Wire Rope Clip (13mm) to complete the installation (Fig. 4).

Reeve the 4-Part Hook Block

1. Over the TOP of the RIGHT (Boom Tip) sheave to the RIGHT side of the FRONT (Hook Block) sheave.
2. Push the wire rope through the Hook Block until it emerges from the LEFT side of the FRONT sheave.
3. Pull the wire rope UP and through the A2B Weight.
4. Pull the wire rope and pass it over the FRONT of the LEFT (Boom Tip) sheave until it passes out the rear of the sheave.
5. Pull the wire rope down from REAR of the LEFT (Boom Tip) sheave and push it through the LEFT of the rear (Hook Block) sheave.
6. Push the wire rope until it emerges from the RIGHT of the REAR sheave.
7. Pull the wire rope until all the slack is pulled out from the boom and parts in-between the Hook Block and Boom Tip.



(Fig. 2): Orient the 4-Part Hook so that the A2B Ledge of the hook block is directly below the hanging A2B Weight.



(Fig. 3): When you close the loop, you must ensure that the end of the wire rope is still in the viewing channel .



(Fig. 4): When installing the Wire Rope Socket to the Boom Tip, tilt the "tower" of the socket slightly forward and secure with the pin and bolt.

(TB. 1): This is the pattern for reeving the 4-Part Hook Block.

UN-Install the 1-Part Hook Block (from the Boom)

Vehicle Start Condition

- ♦ 095-/200-Series
- ♦ Deployed (any state)
- ♦ 1-Part Hook Block Installed
- ♦ Boom Deployed, Hook Grounded
- ♦ OFF

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ 13mm wrench
- ♦ Electrical Tape
- ♦ Wire Rope Spacer
- ♦ .25 in punch and hammer (optional)

1. Remove the Wire Rope Clip and Wire Rope Spacer from end of the wire rope.
2. Remove the Wire Rope Wedge from the wide side of the becket of the Wire Rope Socket (Fig. 1).
 - ♦ By tapping on the exposed top of the wedge with a punch and hammer (do not strike the wire rope.) or...
 - ♦ By forcing either end of the wire rope back through the top of the becket to release the wedge.
3. Pull the wire rope completely out of the Wire Rope Socket.
4. Retain all the parts of the Wire Rope Clip, Spacer, and Wire Rope Socket Wedge (Fig. 2).



Fig. 1) The 1-Part Hook Block with the Wire Rope Socket Wedge exposed



(Fig. 2): Retain all of the parts from the 1-Part Hook Block, including the Wire Rope Spacer

UN-Install the 2-Part Hook Block (from the Boom)

Vehicle Start Condition

- ♦ 095-/200-Series
- ♦ Deployed (any state)
- ♦ 1-Part Hook Block Installed
- ♦ Boom Deployed, Hook Grounded
- ♦ OFF

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ 13mm wrench
- ♦ Electrical Tape
- ♦ 8mm Spacer
- ♦ .25 in punch and hammer (optional)

1. Remove the Wire Rope Clip and Wire Rope Spacer from end of the wire rope.
2. Remove the Wire Rope Wedge from the wide side of the becket of the Wire Rope Socket (Fig. 3).
 - ♦ By tapping on the exposed top of the wedge with a punch and hammer (do not strike the wire rope.) or...
 - ♦ By forcing either end of the wire rope back through the top of the becket to release the wedge.
3. Pull the wire rope completely out of the Wire Rope Socket.
4. Retain all the parts of the Wire Rope Clip, Spacer, and Wire Rope Socket Wedge.
5. You may choose to leave the Wire Rope Socket attached to the Boom Tip or remove it by removing the retaining bolt (17mm) and pin (Fig. 4).



(Fig. 3): When assembling the wire rope clip, make sure to place the U-bolt on the actual wire rope and the saddle on the Wire Rope Spacer.



(Fig. 4): The Wire Rope Socket is used with both the 1-Part and 2-Part Hook Blocks

UN-Install the 4-Part Hook Block

Vehicle Start Condition

- ♦ 200-Series
- ♦ Deployed (any state)
- ♦ 4-Part Hook Block Installed
- ♦ Boom Deployed, Hook Block Grounded
- ♦ OFF

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <10 minutes

Tools and Equipment Needed

- ♦ 13mm wrench
- ♦ Electrical Tape
- ♦ 8mm Spacer
- ♦ .25 in punch and hammer (optional)

1. Remove the both nuts (13mm) from the Wire Rope Clip located on the right side of the Boom Tip.
2. Remove the Wire Rope Socket Pin Bolt (19mm) and lock washer from the right side of the Boom Tip (Fig. 1).
3. While supporting the Wire Rope Socket with your right hand, remove the Wire Rope Socket Pin with your left hand, allowing the Wire Rope Socket to fall out of the Boom Tip and into your hand (Fig. 1).
4. Remove the Wire Rope Clip from the Wire Rope Socket.
5. Remove the Wire Rope Wedge from the Wire Rope Socket.
 - ♦ By tapping on the exposed top of the wedge with a punch and hammer (do not strike the wire rope.) or...
 - ♦ By forcing either end of the wire rope back through the top of the becket to release the wedge (Fig. 2).
6. Pull the wire rope completely out of the Wire Rope Socket.
7. Pull the wire rope out of the sheaves of the Boom Tip and 4-Part Hook Block to complete the un-installation.
8. Install the Wire Rope Socket back into the Boom Tip and retain the Wire Rope Socket Wedge and Wire Rope Clip (Fig. 4).



(Fig. 1): Remove the Wire Socket Pin Bolt and then support the Wire Rope Socket as you pull the Wire Rope Socket Pin out.



(Fig. 2): Remove (or at least loosen) the Wire Rope Clip before attempting to uninstall the wire rope from the Wire Rope Socket.



(Fig. 3): Pull the uninstalled wire rope through all of the sheaves of the 4-Part Hook Block and the left-hand sheave of the Boom Tip.



(Fig. 4): Retain the Wire Rope Clip and Wire Rope Socket Wedge after installing the Wire Rope Socket.

Store/Remove the Wire Rope (Primary Winch)

Vehicle Start Condition

- ♦ 090-/200-Series
- ♦ Deployed (any state)
- ♦ Boom Deployed, NO Hook Block
- ♦ ON, Remote Control

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ Heavyweight , rope-handling gloves
- ♦ <10 minutes

Tools and Equipment Needed

- ♦ Rag, heavy enough to safely handle moving wire rope
- ♦ Plastic shrink-wrap, or duct tape

To Store the Wire Rope to the Wire Rope Drum

1. Un-reeve the wire rope COMPLETELY out of the Boom Tip and the Boom.

WARNING: To properly store the wire rope to the Wire Rope Drum you MUST spool the wire rope onto the drum TIGHTLY: you MUST PULL on the wire rope WHILE WINCHING UP to maintain tension, there is a high possibility of injury if you are not attentive.

2. Grasp the wire rope near the Wire Rope Drum; ensure that you are wearing heavy gloves AND using a rag to prevent friction burns and/or getting stuck by broken wire rope strands.
3. Using the Remote Controller, SLOWLY WINCH UP to spool the wire rope onto the drum.
4. Ensure that the wire rope is laying onto the drum and wrapping into tight, ordered lines.
5. Periodically adjust your grip on the wire rope to keep at least 12 inches of space between your hand and the moving Wire Rope Drum (Fig. 1).
6. Once you have WINCHED UP all but 12 inches of wire rope onto the drum, secure the end by tying off a section of plastic shrink wrap to it and then WINCH UP to pull the shrink wrap onto the drum to secure the wire rope.

To Remove the Wire Rope

1. Using the Remote Controller, SLOWLY command a WINCH DOWN while pulling on the rope to maintain tension; continue to WINCH DOWN until the Minimum Wire Rope Safety engages and disables the WINCH DOWN function.
2. To unwrap the final 3-5 wraps of wire rope remaining on the drum, push and hold the Overwinding Override Switch WHILE WINCHING DOWN (the Switch is located next to the Crane Control Levers, below the Hook Store Switch).
3. Continue to WINCH DOWN SLOWLY until the narrow end of the Wire Rope Wedge in the Wire Rope Drum is accessible (Fig. 2).
4. Use the small punch to tap the Wire Rope Wedge out of position and release the end of the wire rope (Fig. 3).



(Fig. 1): Periodically stop WINCHING UP to make that the wire Rope is laying back onto the drum in an orderly fashion.



(Fig. 1): Rotate the Wire Rope Drum, until the narrow end of the Wire Rope Wedge is visible.



(Fig. 2): Push the Wire Rope Wedge out of the Wire Rope Drum and retain for future use.

Install the Wire Rope (Primary Winch)

Vehicle Start Condition

- ♦ 090-/200-Series
- ♦ Deployed (any state)
- ♦ Boom Deployed, NO Hook Block
- ♦ ON, Remote Control

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ Heavyweight , rope-handling gloves
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ None

To Install the Wire Rope

1. Reeve the wire rope through the Boom Tip, through the boom guides, to the Wire Rope Drum (Fig. 3).
2. Pass the end through the Wire Rope Socket of the Wire Rope Drum until approximately 18 inches of wire rope extends out the opposite side of the socket.
 - a. Make sure to insert the end into the socket to the right (or the side of the socket closest to the edge of the drum)
3. Form a loop in the wire rope re-insert the end back through the socket, going in the opposite direction.
4. Insert the Wire Rope Wedge into the loop and collapse the loop so that the end of the wire rope is flush with the edge of the socket ; it is CRITICAL that the end of the wire rope be flush with the drum (Fig. 4).

NOTE: It is CRITICAL that you maintain tension on the wire rope while WINCHING UP

NOTE: It is CRITICAL that you ensure that the wire rope wraps onto the drum in an orderly fashion while WINCHING UP

6. One person must maintain tension on the wire rope while WINCHING UP, while the other person must ensure that the Wire Rope is wrapping onto the Wire Rope Drum in an orderly fashion, one technique:
7. WINCH UP the wire rope, while maintaining tension and adjusting the wraps.
8. Continue to WINCH UP until the end of the wire rope is off the ground and hanging off the front of the right-hand Boom Tip Sheave.



(Fig. 3): Reeve the wire rope through the boom BACKWARDS, starting at the right-hand sheave of the Boom Tip.



(Fig. 4): Make sure that the end is visible in the socket cutout BUT NOT protruding out of the cutout (and tangling into the stored wire rope.

Install the Jib

Vehicle Start Condition

- ♦ 200-Series
- ♦ Deployed (any state)
- ♦ Boom Deployed, NO Hook Block Installed

Personnel and Time Needed

- ♦ 2 Persons
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ None

Installing the Jib for use with the 1-PART HOOK BLOCK

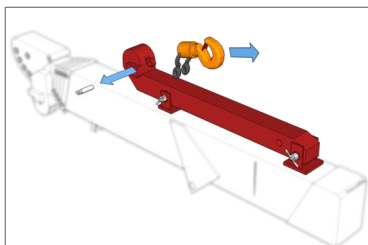
1. Remove the Searcher Hook and Shackle, retain for later use (Fig. 1).
2. Remove the weather cap of the Jib A2B Switch Connector and BOTH weather caps of the A2B Switch Extension Cord.

NOTE: You DO NOT need to remove the caps if you are using the Searcher Hook with the Jib.

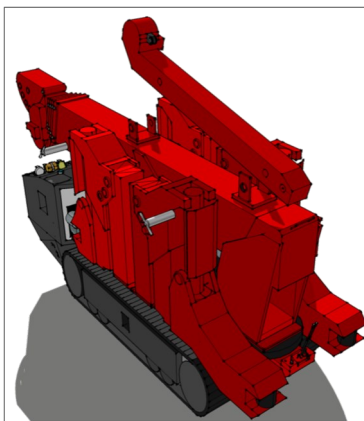
3. Dismount the Jib from its Storage Cradle; retain the two Jib Pins (Fig. 2).

NOTE: The Jib weighs 70 lbs., dismantling/mounting it is a two-person task.

2. Turn the Jib over so that the Jib Tip Sheave is facing the ground and Insert the rear end of the Jib into the Jib Hood; make sure not to crush the Jib A2B Connector or the A2B Extension.
3. Line up the rear Jib Pin Hole with the center hole of the Jib Hood and secure with the Jib Pin and safety-clip.
4. Select the desired tilt angle for the Jib (0°, 20°, 40°, or 60°) by tilting the Jib on the first Jib Pin and then inserting and clipping the second Jib Pin through the selected Jib Tilt Angle Hole of the Jib Hood and the forward Jib Pin Hole.
5. Connect the Jib A2B Switch Connector with the inside end of the A2B Switch Extension.
6. Disconnect the Boom A2B Switch from the A2B System and plug the outer end of the A2B Switch Extension into the A2B System (Fig. 5).
7. Use the one of the weather caps you removed earlier to cover the exposed Boom A2B Switch Connector, place the other two into the Storage Compartment.



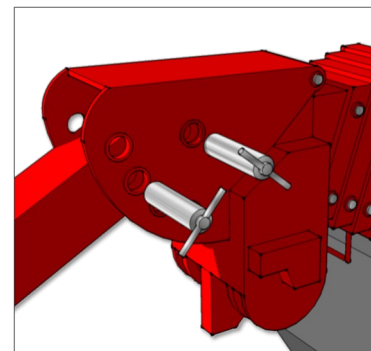
(Fig. 1) The Searcher Hook and its hardware is removed to make handling the Jib easier.



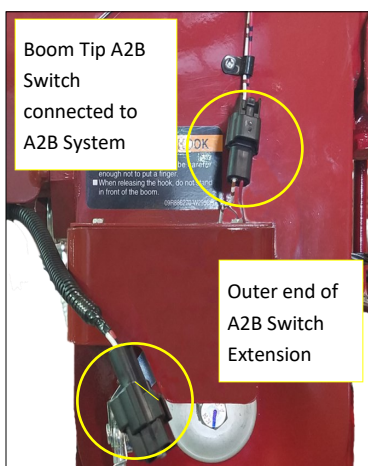
(Fig. 2) Pull the two Jib Pins and dismount the Jib by pulling straight up and back.



(Fig. 3) The A2B Switch Extension Cord is installed on the inside of the Jib Hood.



(Fig. 4) Insert the two Jib Pins to lock the Jib to the desired Tilt Angle.



(Fig. 5) The Boom Tip A2B Switch connected to the A2B System and the outer end of the A2B Switch Extension.

Install the Jib (*continued*)

Installing the 1-Part Hook to the Jib

1. Install the Jib A2B Weight to the Jib A2B Switch, using the included carabiner.

Note: the Jib A2B Weight is stored in the Storage Compartment; the Wire Rope Wedge and Wire Rope Clip are taken from the 4-Part Hook Block.

1. Use a cable-tie to secure the Boom A2B Weight to its switch, to keep it out of the way.
2. Reeve the wire rope from the Wire Rope Drum over the right-hand Boom Tip Sheave, over the Jib Sheave, and through the Jib A2B Weight (Fig. 5).
3. Push the end of the wire rope down through the narrow end of the 1-Part Hook Block's Wire Rope Socket (follow the embossed arrow on the becket) (Fig. 6).
4. Feed wire rope through the becket of the Wire Rope Socket until two feet of rope is coming out of the bottom.
5. Form a large loop and feed the end back up through the wide side of the becket.
6. Insert the Wire Rope Wedge into the wide side of the becket.
7. Clip the Spacer onto the end of the wire rope so that the U-Bolt of the Wire Rope Clip is fastened around the rope end while the saddle is sitting on the Spacer (Fig. 7).
8. Tighten 13mm nuts of the Wire Rope Clip.
9. Carefully collapse the loop so that it wraps around the back of the wedge and holds it fast and there is six inches of wire rope end (the "tail") coming out of the narrow side of the becket (Fig. 8).



(Fig. 5) The wire rope passes over the right-hand Boom Tip Sheave and Jib Sheave, and through the Jib A2B Weight.



(Fig. 6) Notice the embossed arrow on the side of the becket; the wire rope goes through the narrow end following the arrow.



(Fig. 7) The saddle of the Wire Rope Clip sits on the Spacer while the U-Bolt sits on the end of the wire rope.

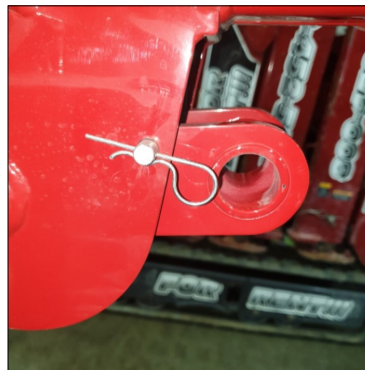


(Fig. 8) Insert the narrow end of the Wire Rope Wedge into the wide side of the becket of the Wire Rope Socket.

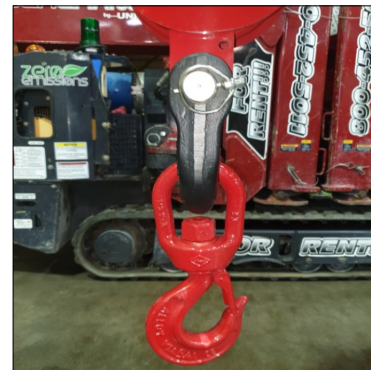
NOTE: The Searcher Hook DOES NOT attach to the wire rope; leave the wire rope stored on the Wire Rope Drum for this procedure.

Installing the Searcher Hook to the Jib

1. Remove the Swivel Lock Pin to free the Searcher Hook Swivel from its storage condition (Fig. 9).
2. Insert the Searcher Hook Shackle through the loop of the Searcher Hook.
3. Install the Searcher Hook Shackle to the Searcher Hook Swivel, using the Shackle Pin, so that the Searcher Hook is hanging freely (Fig. 10).



(Fig. 9) The Searcher Hook Shackle in the stored condition.



(Fig. 10) The installed Searcher Hook hangs freely from the Searcher Hook Swivel.

Readying, Enabling, and Disabling the Auxiliary Winch

Vehicle Start Condition

- ♦ 095-/200-Series w/Aux. Winch
- ♦ Deployed (any state)
- ♦ NO Hook Block installed
- ♦ Wire Rope Stored (Primary Winch)
- ♦ ON, Remote Control

Personnel and Time Needed

- ♦ 2 Persons
- ♦ Standard PPE
- ♦ <15 minutes

Tools and Equipment Needed

- ♦ 13mm Wrench
- ♦ 17mm Wrench
- ♦ Auxiliary Winch Boom Tip Adapter (BTA)

Install the Auxiliary Winch Boom Tip Adapter (BTA)

1. Remove the primary winch hook block and store/remove the wire rope of the primary winch.
2. Install the Auxiliary Winch BTA to the Jib Hood, using both BTA Pins (Fig.1).
3. Set the Winch Selector Switch to AUXILIARY WINCH.

Remove Jib System and Jib Storage Cradle

1. Dismount and remove the Jib System.
2. Remove the two brackets of the Jib Storage Cradle by removing the eight 17mm installation bolts (there are six short bolts and two long bolts); retain the two long installation bolts, washers, and split-ring washers.
3. Install (or re-install) the Wire Rope Socket Bracket to the two bolt-holes on the rear, right-side of the boom; using the two long installation bolts, washers, and split-ring washers (Fig. 32).

Reeve the Wire Rope for the Auxiliary Winch

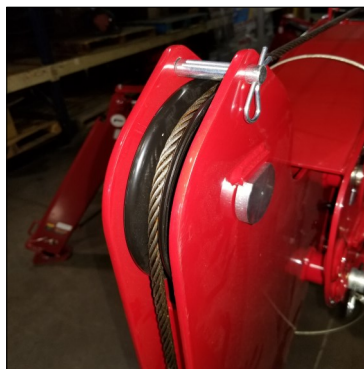
1. WINCH DOWN to release tension from the stored Wire Rope Socket.
2. Remove the Wire Rope Socket from the Wire Rope Socket Storage Bracket.
3. Remove the Wire Rope Retention Bars from the installed Auxiliary Winch BTA (Fig. 3).
4. Reeve the wire rope over the top of the boom and over both Auxiliary Winch BTA Sheaves.
5. Install the Wire Rope Retention Bards to Auxiliary Winch BTA (Fig. 4).



(Fig. 1): The installed Auxiliary Winch BTA with its BTA Pins installed and safety-clipped.



(Fig. 2): The Wire Rope Socket Bracket installed without the Jib Storage Cradle.



(Fig. 3): The upper Wire Rope Retention Pin, installed.



(Fig. 4): The Auxiliary Winch with its wire rope reeved and connected to the 1-Part Hook Block.

Readying, Enabling, and Disabling the Auxiliary Winch (*continued*)

To Install the 1-Part Hook Block to the Auxiliary Winch

NOTE: If the 1-Part Hook Block is already assembled, use **OPTION A**. If the 1-Part Hook Block is **NOT** assembled and the Wire Rope Socket is attached to the wire rope and stored on the Wire Rope Socket Bracket on the boom, use **OPTION B**.

OPTION A: 1-Part Hook Block is already assembled

1. Reeve the wire rope through the Boom A2B Weight.
2. Use the 1-Part Hook Block Installation Procedure for the 095-/200-Series SPYDERCRANE.

OPTION B: 1-Part Hook Block already assembled

1. Assemble the Boom Tip A2B Weight around the wire rope.
 2. Remove wire rope retention bar from A2B Weight with a 5mm hex key.
 3. Re-assemble the A2B Weight **AROUND** the wire rope by installing the wire rope retention bar.
2. Install the Wire Rope Socket that is already attached to the end of the wire rope to the barrel of the 1-Part Hook.

To Store the Wire Rope to the Auxiliary Winch

1. Disassemble and store the 1-Part Hook Assembly
 - a. Remove the Wire Rope Socket Pin and retention bolt (17mm)
 - b. Store the disassembled 1-Part Hook Block into its holder at the rear of the turret.
2. Remove the Boom A2B Weight from the wire rope
 - a. Remove wire rope retention bar from A2B Weight (5mm hex)
 - b. Release the wire rope from the weight and install the wire rope retention bar (5mm hex)
 - c. Leave the A2B Weight hanging from the Boom A2B Switch.
3. Remove the Wire Rope Retaining Bars from the Auxiliary Winch BTA and pull the wire rope out of the sheaves.

WARNING: To properly store the wire rope to the Wire Rope Drum you MUST spool the wire rope onto the drum TIGHTLY: you MUST PULL on the wire rope WHILE WINCHING UP to maintain tension, there is a high possibility of injury if you are not attentive.

4. Grasp the wire rope near (no less than 12 inches) the Auxiliary Winch; wear heavyweight gloves AND using a rag to prevent injury.
5. Using the Remote Controller, SLOWLY WINCH UP to begin spooling the wire rope onto the drum.
6. While WINCHING UP, ensure that the wire rope is laying onto the drum and wrapping into tight, ordered lines.
7. Periodically adjust your grip on the wire rope to keep at least 12 inches of space between your hand and the moving Wire Rope Drum.
10. Once there is no more than 12 inches of wire rope remaining, attach the Wire Rope Socket to the Wire Rope Socket Bracket with the Wire Rope Socket Pin.
11. WINCH UP SLOWLY to lock the wire rope to the Wire Rope Socket Bracket.
12. Set the Winch Selector Switch to PRIMARY WINCH.

Load Charts: URW094

URW094 (2-Part Hook)								
Stage 1								
W/R	3	3.5	4	4.5	4.62			
MAX	1990	1990	1990	1990	1990			
NOT-MAX	1760	1760	1620	1470	1430			
Stage 2								
W/R	3	3.5	4.5	5	7	8	8.82	
MAX	1990	1990	1990	1990	1660	1460	1270	
NOT-MAX	1760	1760	1450	1300	800	650	500	
Stage 3								
W/R	3	6	7	8	9	10	11	12.89
MAX	1870	1860	1670	1470	1300	1150	950	700
NOT-MAX	1100	1080	800	650	500	400	340	250
Stage 4								
W/R	8	9	10	11	12	14	16	16.96
MAX	1450	1300	1140	980	840	650	500	440
NOT-MAX	750	520	390	340	280	200	150	140
♦ The above tables are for RATED LOADS; in order to determine the SPYDERCRANE’s NET-RATED Capacity, deduct 35 lbs (the 2-Part Hook Block).								
♦ Unless equipped with the Auxiliary Winch, the URW094 can ONLY use the 2-Part Hook Block.								
♦ To use this Load Chart, you must determine the SPYDERCRANE’s Deployment State, Boom Stage, and Working Radius, and Working Radius (W/R)								

Load Charts: URW095

URW095 (1-Part Hook)										
Stage 1+2										
W/R	3	4.5	5	6	7	8	10	11	12.83	
MAX	1630	1630	1630	1630	1630	1630	1630	1630	1630	
NOT-MAX	1630	1630	1630	1630	1630	1600	1100	950	600	
Stage 3										
W/R	7	8	9.5	10	11	12	14	15	17.62	
MAX	1630	1630	1630	1630	1630	1630	1630	1450	1000	
NOT-MAX	1630	1550	1250	1150	1000	850	600	550	300	
Stage 4										
W/R	11	12.5	13	15	16	17	18	20	22.61	
MAX	1630	1630	1630	1350	1200	1100	1000	850	660	
NOT-MAX	1000	800	750	600	510	450	370	280	200	
Stage 5										
W/R	12.5	13.5	15	16	18	19	21	23	25	27.82
MAX	1280	1280	1050	920	750	700	590	500	400	350
NOT-MAX	850	700	600	530	420	380	300	220	180	130
♦ The above tables are for RATED LOADS; in order to determine the SPYDERCRANE's NET-RATED Capacity, deduct 25 lbs (if using the 1-Part Hook Block).										
♦ To use this Load Chart, you must determine the SPYDERCRANE's Deployment State, Boom Stage, and Working Radius, and Working Radius (W/R).										

URW095 (2-Part Hook)										
Stage 1+2										
W/R	3	4.5	5	6	7	8	10	11	12.83	
MAX	1990	1990	1990	1990	1990	1990	1990	1990	1990	
NOT-MAX	1990	1990	1990	1990	1990	1600	1100	950	600	
Stage 3										
W/R	7	8	9.5	10	11	12	14	15	17.62	
MAX	1990	1990	1990	1990	1990	1990	1650	1450	1000	
NOT-MAX	1850	1550	1250	1150	1000	850	600	550	300	
Stage 4										
W/R	11	12.5	13	15	16	17	18	20	22.61	
MAX	1950	1950	1750	1350	1200	1100	1000	850	660	
NOT-MAX	995	815	730	620	485	375	290	245	200	
Stage 5										
W/R	12.5	13.5	15	16	18	19	21	23	25	27.82
MAX	1280	1280	1050	920	750	700	590	500	400	350
NOT-MAX	850	700	600	530	420	380	300	110	180	130
♦ The above tables are for RATED LOADS; in order to determine the SPYDERCRANE’s NET-RATED Capacity, deduct 35 lbs (if using the 2-Part Hook Block).										
♦ To use this Load Chart, you must determine the SPYDERCRANE’s Deployment State, Boom Stage, and Working Radius, and Working Radius (W/R).										

Load Charts: URW095S

URW095S (1-Part Hook)									
Stage 1+2									
W/R	3	4.5	5	6	7	8	10	11	12.83
MAX	1630	1630	1630	1630	1630	1630	1630	1630	1630
NOT-MAX	1630	1630	1630	1630	1630	1600	1100	950	600
Stage 3									
W/R	7	8	9.5	10	11	12	14	15	17.62
MAX	1630	1630	1630	1630	1630	1630	1630	1450	1000
NOT-MAX	1630	1550	1250	1150	1000	850	600	550	300
Stage 4									
W/R	11	12.5	13	15	16	17	18	20	22.61
MAX	1630	1630	1630	1350	1200	1100	1000	850	660
NOT-MAX	1000	800	750	600	510	450	370	280	200
Stage 5									
W/R	12.5	13.5	15	16	18	19	21	23	24.1
MAX	1280	1280	1050	920	750	700	590	500	460
NOT-MAX	850	700	600	530	420	380	300	220	200
- The above tables are for RATED LOADS; in order to determine the SPYDERCRANE's NET-RATED Capacity, deduct 25 lbs (if using the 1-Part Hook Block). - To use this Load Chart, you must determine the SPYDERCRANE's Deployment State, Boom Stage, and Working Radius, and Working Radius (W/R).									

URW095S (2-Part Hook)									
Stage 1+2									
W/R	3	4.5	5	6	7	8	10	11	12.83
MAX	1990	1990	1990	1990	1990	1990	1990	1990	1990
NOT-MAX	1990	1990	1990	1990	1990	1600	1100	950	600
Stage 3									
W/R	7	8	9.5	10	11	12	14	15	17.62
MAX	3050	3050	3050	2750	2450	2150	1650	1450	1000
NOT-MAX	1850	1550	1250	1150	1000	850	600	550	300
Stage 4									
W/R	11	12.5	13	15	16	17	18	20	22.61
MAX	1950	1950	1750	1350	1200	1100	1000	850	660
NOT-MAX	995	815	730	620	485	375	290	245	200
Stage 5									
W/R	12.5	13.5	15	16	18	19	21	23	24.1
MAX	1280	1280	1050	920	750	700	590	500	460
NOT-MAX	850	700	600	530	420	380	300	220	200
- The above tables are for RATED LOADS; in order to determine the SPYDERCRANE's NET-RATED Capacity, deduct 35 lbs (if using the 2-Part Hook Block). - To use this Load Chart, you must determine the SPYDERCRANE's Deployment State, Boom Stage, and Working Radius, and Working Radius (W/R).									

Load Charts: URW205

URW205 (1-Part Hook)										
Stage 1+2										
W/R	3	4.5	5	6	7	8	10	11	12.83	
MAX	1630	1630	1630	1630	1630	1630	1630	1630	1630	
NOT-MAX	1630	1630	1630	1630	1630	1600	1100	950	600	
Stage 3										
W/R	7	8	9.5	10	11	12	14	15	17.62	
MAX	1630	1630	1630	1630	1630	1630	1630	1450	1000	
NOT-MAX	1630	1550	1250	1150	1000	850	600	550	300	
Stage 4										
W/R	11	12.5	13	15	16	17	18	20	22.61	
MAX	1630	1630	1630	1350	1200	1100	1000	850	660	
NOT-MAX	1000	800	750	600	510	450	370	280	200	
Stage 5										
W/R	12.5	13.5	15	16	18	19	21	23	25	27.82
MAX	1280	1280	1050	920	750	700	590	500	400	350
NOT-MAX	850	700	600	530	420	380	300	220	180	130
♦ The above tables are for RATED LOADS; in order to determine the SPYDERCRANE's NET-RATED Capacity, deduct 25 lbs (if using the 1-Part Hook Block).										
♦ To use this Load Chart, you must determine the SPYDERCRANE's Deployment State, Boom Stage, and Working Radius, and Working Radius (W/R).										

URW205 (4-Part Hook)										
Stage 1+2										
W/R	3	4.5	5	6	7	8	10	11	12.83	
MAX	5800	5800	5800	4950	4350	3800	2850	2450	2000	
NOT-MAX	4450	4450	4450	3150	2250	1600	1100	950	600	
Stage 3										
W/R	7	8	9.5	10	11	12	14	15	17.85	
MAX	3050	3050	3050	2750	2450	2150	1650	1450	1000	
NOT-MAX	1850	1550	1250	1150	1000	850	600	550	300	
Stage 4										
W/R	11	12.5	13	15	16	17	18	20	22.83	
MAX	1950	1950	1750	1350	1200	1100	1000	850	660	
NOT-MAX	1000	800	750	600	510	450	370	280	200	
Stage 5										
W/R	12.5	13.5	15	16	18	19	21	23	25	27.82
MAX	1280	1280	1050	920	750	700	590	500	400	350
NOT-MAX	850	700	600	530	420	380	300	220	180	130
♦ The above tables are for RATED LOADS; in order to determine the SPYDERCRANE’s NET-RATED Capacity, deduct 70 lbs (if using the 4-Part Hook Block).										
♦ To use this Load Chart, you must determine the SPYDERCRANE’s Deployment State, Boom Stage, and Working Radius, and Working Radius (W/R).										

Load Charts: URW205S

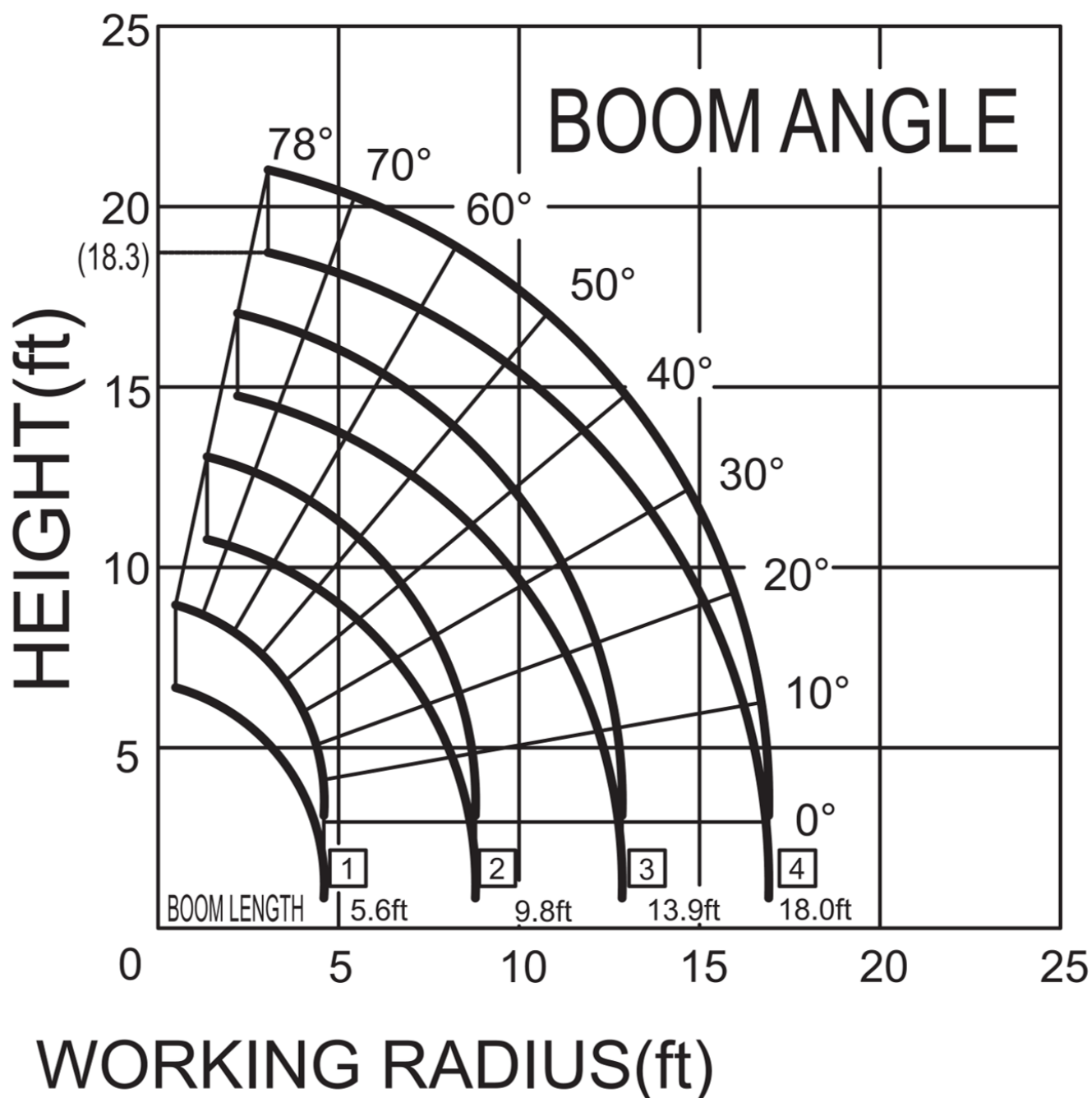
URW205S (1-Part Hook)									
Stage 1+2									
W/R	3	4.5	5	6	7	8	10	11	12.83
MAX	1630	1630	1630	1630	1630	1630	1630	1630	1630
NOT-MAX	1630	1630	1630	1630	1630	1600	1100	950	600
Stage 3									
W/R	7	8	9.5	10	11	12	14	15	17.62
MAX	1630	1630	1630	1630	1630	1630	1630	1450	1000
NOT-MAX	1630	1550	1250	1150	1000	850	600	550	300
Stage 4									
W/R	11	12.5	13	15	16	17	18	20	22.61
MAX	1630	1630	1630	1350	1200	1100	1000	850	660
NOT-MAX	1000	800	750	600	510	450	370	280	200
Stage 5									
W/R	12.5	13.5	15	16	18	19	21	23	24.1
MAX	1280	1280	1050	920	750	700	590	500	460
NOT-MAX	850	700	600	530	420	380	300	220	200
- The above tables are for RATED LOADS; in order to determine the SPYDERCRANE's NET-RATED Capacity, deduct 25 lbs (if using the 1-Part Hook Block). - To use this Load Chart, you must determine the SPYDERCRANE's Deployment State, Boom Stage, and Working Radius, and Working Radius (W/R).									

URW205S (4-Part Hook)									
Stage 1+2									
W/R	3	4.5	5	6	7	8	10	11	12.83
MAX	5800	5800	5800	4950	4350	3800	2850	2450	2000
NOT-MAX	4450	4450	4450	3150	2250	1600	1100	950	600
Stage 3									
W/R	7	8	9.5	10	11	12	14	15	17.62
MAX	3050	3050	3050	2750	2450	2150	1650	1450	1000
NOT-MAX	1850	1550	1250	1150	1000	850	600	550	300
Stage 4									
W/R	11	12.5	13	15	16	17	18	20	22.61
MAX	1950	1950	1750	1350	1200	1100	1000	850	660
NOT-MAX	1000	800	750	600	510	450	370	280	200
Stage 5									
W/R	12.5	13.5	15	16	18	19	21	23	24.1
MAX	1280	1280	1050	920	750	700	590	500	460
NOT-MAX	850	700	600	530	420	380	300	220	200
- The above tables are for RATED LOADS; in order to determine the SPYDERCRANE's NET-RATED Capacity, deduct 70 lbs (if using the 4-Part Hook Block). - To use this Load Chart, you must determine the SPYDERCRANE's Deployment State, Boom Stage, and Working Radius, and Working Radius (W/R).									

Load Charts: URW295

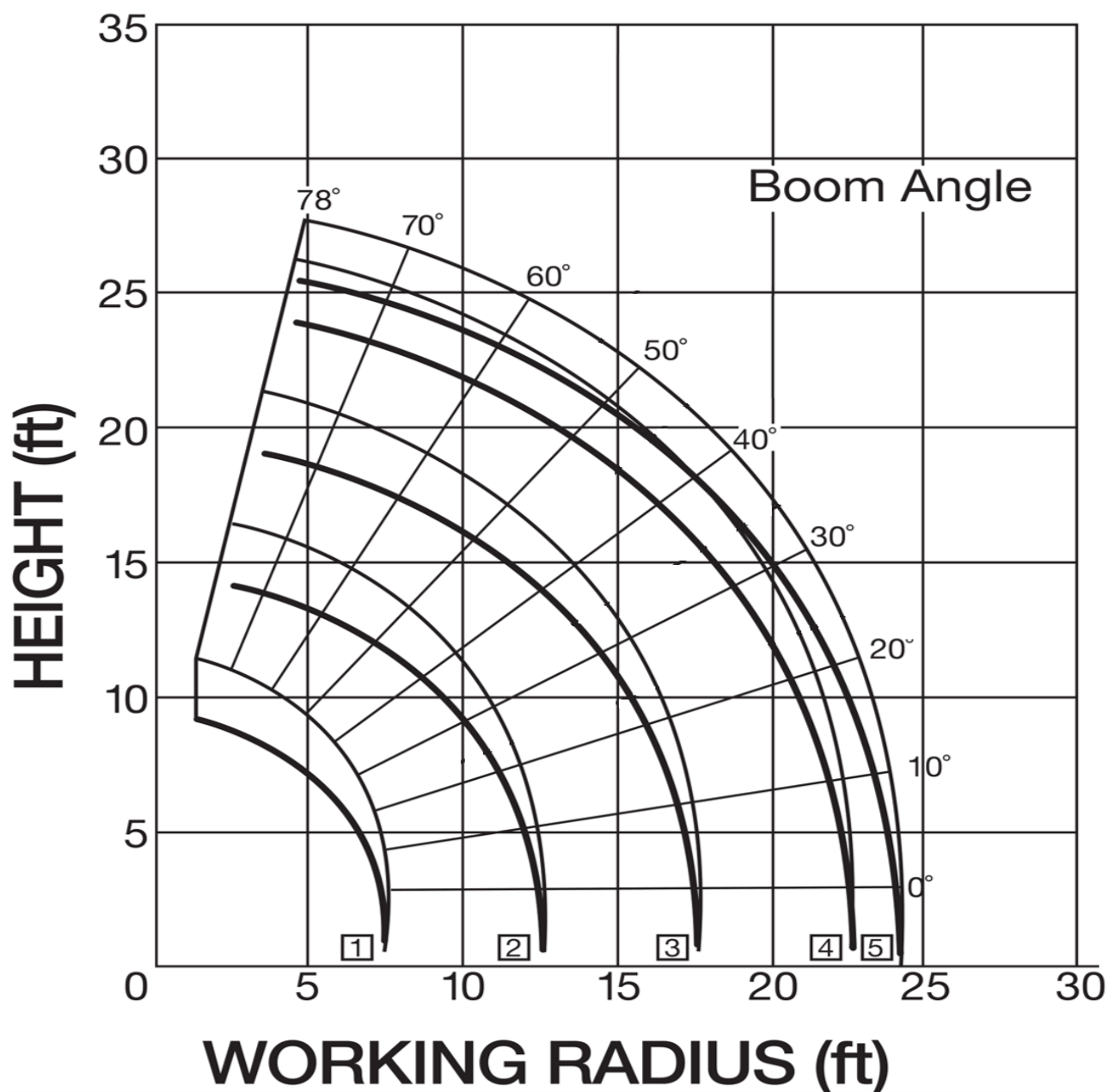
URW295 (1-Part Hook)										
Stage 1+2										
W/R	3	4.5	5	6	7	8	10	11	12.83	
MAX	1630	1630	1630	1630	1630	1630	1630	1630	1630	
NOT-MAX	1630	1630	1630	1630	1630	1600	1100	950	600	
Stage 3										
W/R	7	8	9.5	10	11	12	14	15	17.62	
MAX	1630	1630	1630	1630	1630	1630	1630	1450	1000	
NOT-MAX	1630	1550	1250	1150	1000	850	600	550	300	
Stage 4										
W/R	11	12.5	13	15	16	17	18	20	22.61	
MAX	1630	1630	1630	1350	1200	1100	1000	850	660	
NOT-MAX	1000	800	750	600	510	450	370	280	200	
Stage 5										
W/R	12.5	13.5	15	16	18	19	21	23	25	27.82
MAX	1280	1280	1050	920	750	700	590	500	400	350
NOT-MAX	850	700	600	530	420	380	300	220	180	130
♦ The above tables are for RATED LOADS; in order to determine the SPYDERCRANE’s NET-RATED Capacity, deduct 25 lbs (if using the 1-Part Hook Block).										
♦ To use this Load Chart, you must determine the SPYDERCRANE’s Deployment State, Boom Stage, and Working Radius, and Working Radius (W/R).										

URW295 (1-Part Hook)										
Stage 1+2										
W/R	3	4.5	5	6	7	8	10	11	12.83	
MAX	6450	6450	5850	4950	4350	3800	2850	2450	2000	
NOT-MAX	4450	4450	4450	3150	2250	1600	1100	950	600	
Stage 3										
W/R	7	8	9.5	10	11	12	14	15	17.85	
MAX	3050	3050	3050	2750	2450	2150	1650	1450	1000	
NOT-MAX	1850	1550	1250	1150	1000	850	600	550	300	
Stage 4										
W/R	11	12.5	13	15	16	17	18	20	22.83	
MAX	1950	1950	1750	1350	1200	1100	1000	850	660	
NOT-MAX	1000	800	750	600	510	450	370	280	200	
Stage 5										
W/R	12.5	13.5	15	16	18	19	21	23	25	27.82
MAX	1280	1280	1050	920	750	700	590	500	400	350
NOT-MAX	850	700	600	530	420	380	300	110	180	130
♦ The above tables are for RATED LOADS; in order to determine the SPYDERCRANE’s NET-RATED Capacity, deduct 70 lbs (if using the 4-Part Hook Block).										
♦ To use this Load Chart, you must determine the SPYDERCRANE’s Deployment State, Boom Stage, and Working Radius, and Working Radius (W/R).										



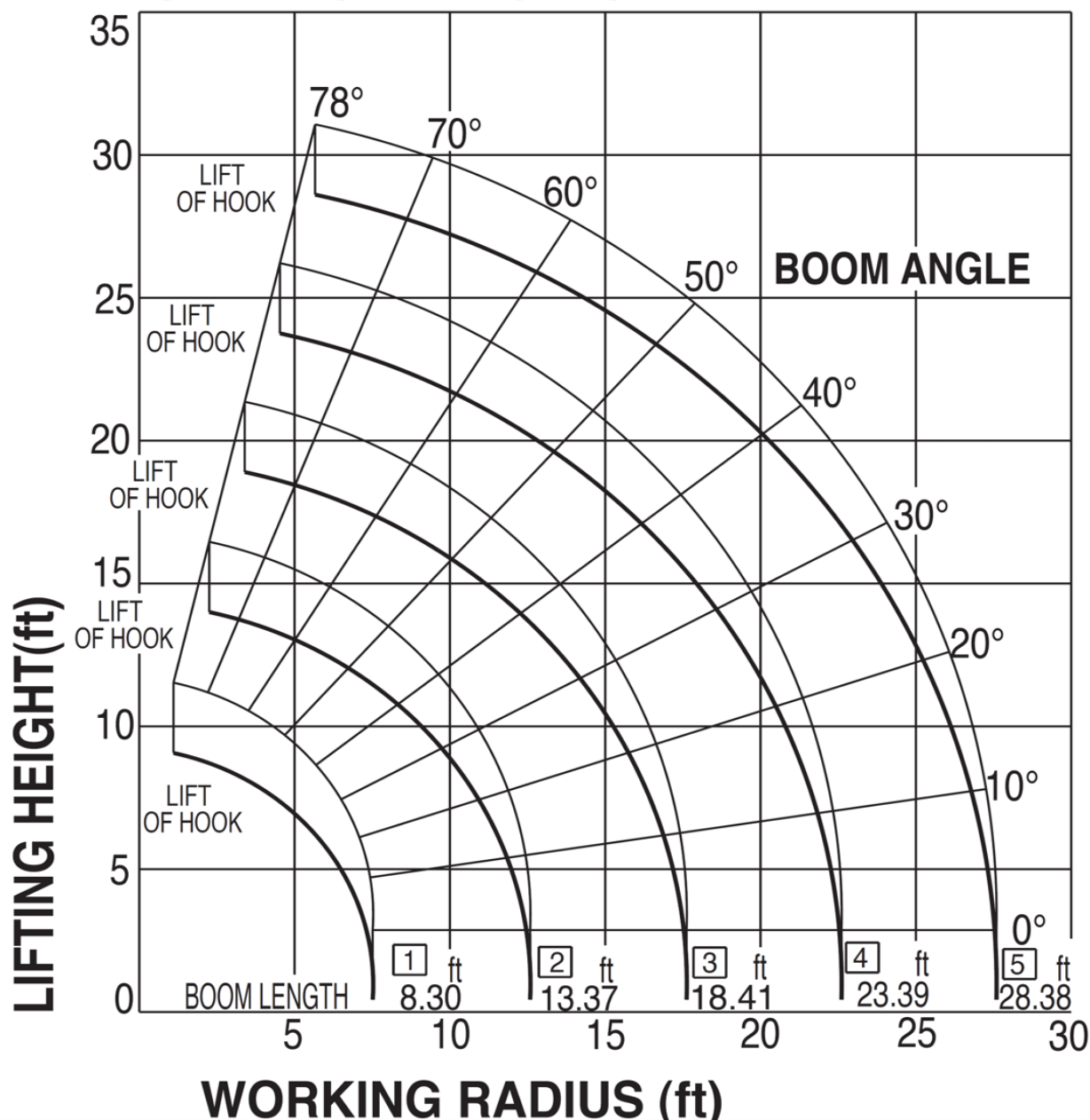
- For each Boom Stage, the inside arc traces the path of the Hook Height while the outside arc describes the arc of the Boom Tip (for Tip Height calculations).
- This chart assumes a properly deployed SPYDERCRANE with 2 inches of space in-between the crawler tracks and the ground.
- This chart DOES NOT factor in boom deflection.

WORKING RANGE CHART



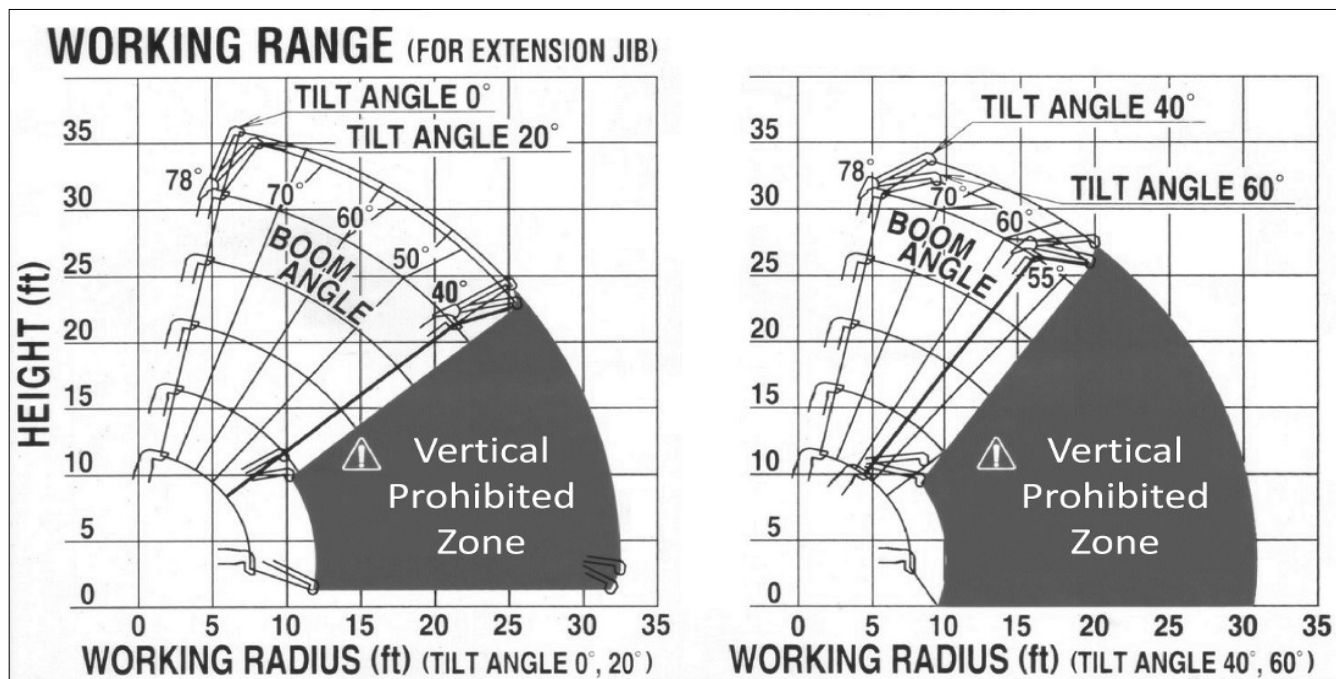
- ♦ For each Boom Stage, the inside arc traces the path of the Hook Height while the outside arc describes the arc of the Boom Tip (for Tip Height calculations).
- ♦ This chart assumes that one of the SPYDERCRANE's standard hook blocks has been installed (NOT the Searcher Hook).
- ♦ This chart assumes a properly deployed SPYDERCRANE with 2 inches of space in-between the crawler tracks and the ground.
- ♦ This chart DOES NOT factor in boom deflection.

WORKING RANGE CHART



- ♦ For each Boom Stage, the inside arc traces the path of the Hook Height while the outside arc describes the arc of the Boom Tip (for Tip Height calculations).
- ♦ This chart assumes that one of the SPYDERCRANE's standard hook blocks has been installed (NOT the Searcher Hook).
- ♦ This chart assumes a properly deployed SPYDERCRANE with 2 inches of space in-between the crawler tracks and the ground.
- ♦ This chart DOES NOT factor in boom deflection.

Working Range Chart: Jib-Equipped URW095, URW205, URW295



Boom Stage 1-4				
Boom Angle	Jib Tilt Angle			
	0°	20°	40°	60°
78°	1580	1580	1580	1580
75°	1580	1580	1580	1580
70°	1580	1580	1580	1580
65°	1140	1140	1140	1140
60°	810	810	810	810
55°	590	590	Vertical Prohibited Zone	
50°	480	480		
40°	Vertical Prohibited Zone			

Boom Stage				
Boom An- gle	Jib Tilt Angle			
	0°	20°	40°	60°
78°	920	920	920	920
75°	920	920	920	920
70°	920	920	920	920
65°	590	590	590	590
60°	480	480	480	480
55°	370	370	Vertical Prohibited Zone	
50°	260	260		
40°	Vertical Prohibited Zone			

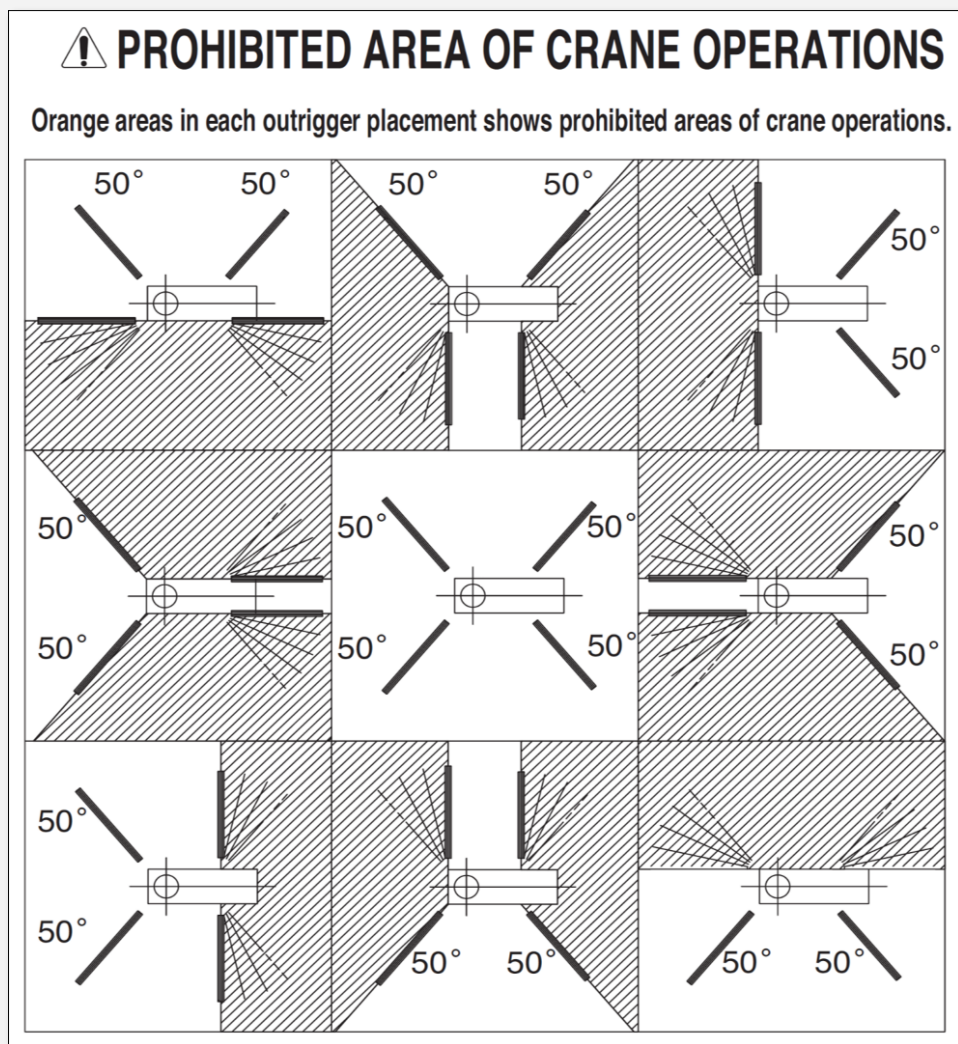
- ♦ The above tables are for use with a Jib-equipped URW095, 205, or 295 ONLY.
- ♦ The listed loads are RATED; you MUST use a deduction of 25 lbs. when using the 1-Part Hook.
- ♦ Unlike the Rated Load Chart for the Main Boom, you can round the boom angles to the nearest 5-degrees.
- ♦ Depending on the Jib Tilt Angle, the Vertical Prohibited Zone can start as high as 55°.

Prohibited Zones Chart

Prohibited Zones

In the vast majority of cases, you can deploy your SPYDERCRANE using the Optimum Deployment Pattern, but, your 090-/200-Series SPYDERCRANE is capable of deploying its outriggers to conform to environments with tight restrictions, or immovable obstacles; this is called using a Non-Optimum Deployment Pattern. The trade-off to using the Non-Optimum Deployment Pattern is the creation of Prohibited Zones, which are areas within the SPYDERCRANE's Working Radius where the boom **MUST NOT BE SLEWED**.

- ♦ These 9 images represent the most common **Deployment Patterns** for the SPYDERCRANE.
- ♦ The center image depicts an **Optimum Deployment Pattern**.
- ♦ The other 8 images depict **Non-Optimum Deployment Patterns**.
- ♦ Using a Non-Optimum Deployment Pattern results in **Prohibited Zones**.
- ♦ The shaded areas represent Prohibited Zones, where the boom **MUST NOT** be slewed.
- ♦ Slewing the boom into a Prohibited Zone **WILL DE-STABILIZE** the SPYDERCRANE.



Prohibited Zones Chart: Optimum Deployment Angle Indicators

Optimum Deployment Angle Indicators

- ♦ At the Deployment Pivot for your SPYDERCRANE's outrigger, you will see a pair yellow arrow indicators. These are the Optimum Deployment Angle Indicators for pre-deploying the outriggers to their Optimum Deployment Pattern.
- ♦ To set your SPYDERCRANE up for its Optimum Deployment Pattern, unlock and rotate the outrigger until the two angle indicators are facing each other, and then re-insert the Deployment Pin to lock the outrigger into place.



(Fig. 1): The Optimum Deployment Angle Indicator for the URW094.



(Fig. 2): The Optimum Deployment Angle Indicator for the 095-/200-Series.

Soft-Resetting the TPD (Code 17)

Vehicle Start Condition	Personnel and Time Needed	Tools and Equipment Needed
♦ 095-/200-Series ♦ Deployed ♦ TPD Error Alarm ♦ CMU CODE 17 ♦ ON	♦ 1 Person ♦ Standard PPE ♦ <5 minutes	♦ None

Major Task: Make the SPYDERCRANE safe (Fig.1).

1. Use the Safety Bypass to ground any attached loads and un-load the Hook Block.
2. Return the Boom to a safe condition: fully-retracted, lowered to less than 10-degrees, over-the-front

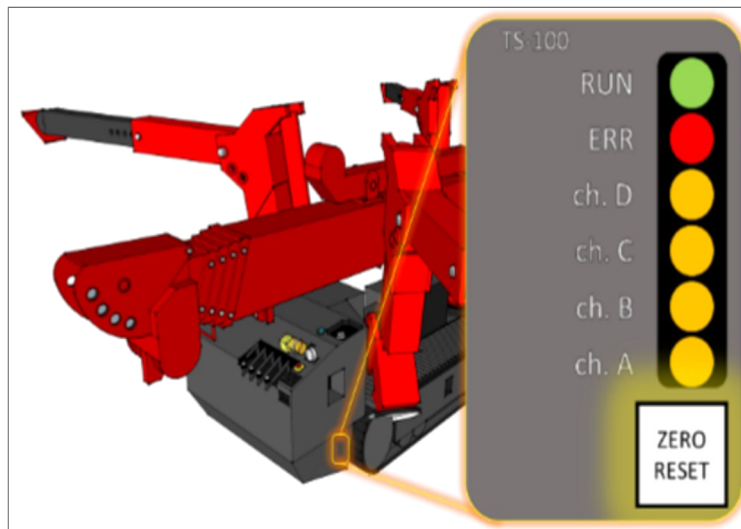
CAUTION: While the Safety Bypass is in-use, NONE of the safety systems will work; DO NOT attempt to fully store the boom or hook.

Major Task: Soft Reset the Turnover Prevention Device (TPD)

1. Hold the Safety Bypass and retract all four outriggers until the SPYDERCRANE is sitting on its crawler tracks (Fig. 1).
2. Push and hold TPD Zero Reset Button until the TPD Error Alarm ceases; release the TPD Zero Reset Button (Fig.2).
3. Allow the TPD to power-up and reboot (approximately 5 seconds).
4. If the TPD boots up normally, without the error alarm, return the SPYDERCRANE to normal operations.
5. If the TPD boots up with its Error Alarm, re-attempt the TPD Soft Reset.
6. If the TPD DOES NOT boot up normally after FIVE attempts, move on to the Hard Reset Procedure.



(Fig. 1): Before attempting to reset the TPD Amplifier, you MUST make the SPYDERCRANE safe to retract and extend the outriggers.



(Fig. 2): The Zero-Reset Switch is on the bottom of the TPB Amplifier's Status Panel.

Hard-Resetting the TPD (Code 17)

Vehicle Start Condition

- ♦ 095-/200-Series
- ♦ Outriggers OFF the ground
- ♦ TPD Error Alarm
- ♦ CMU CODE 17
- ♦ ON

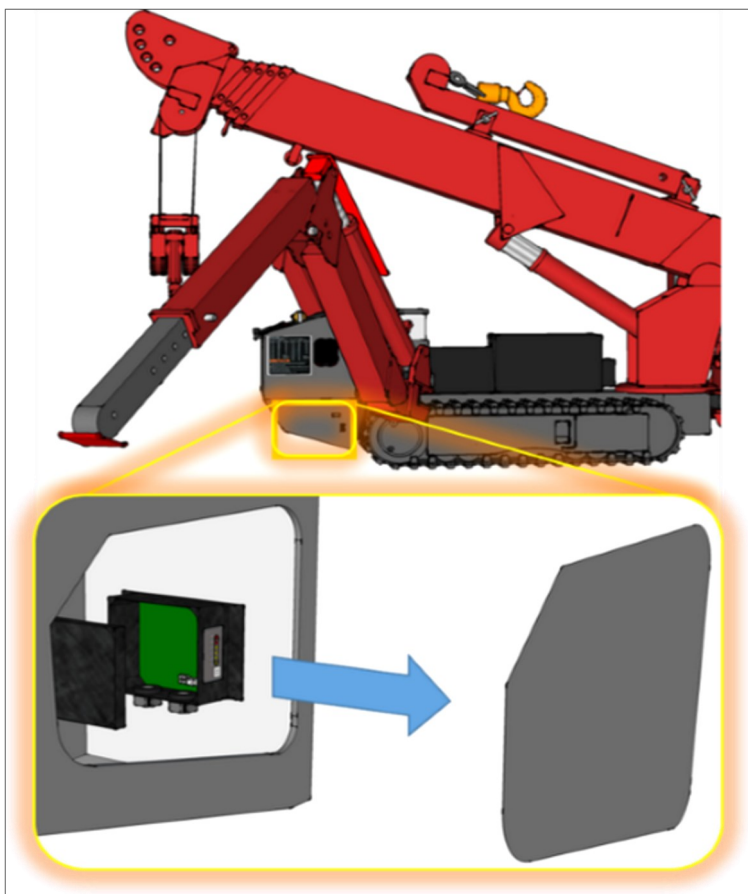
Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

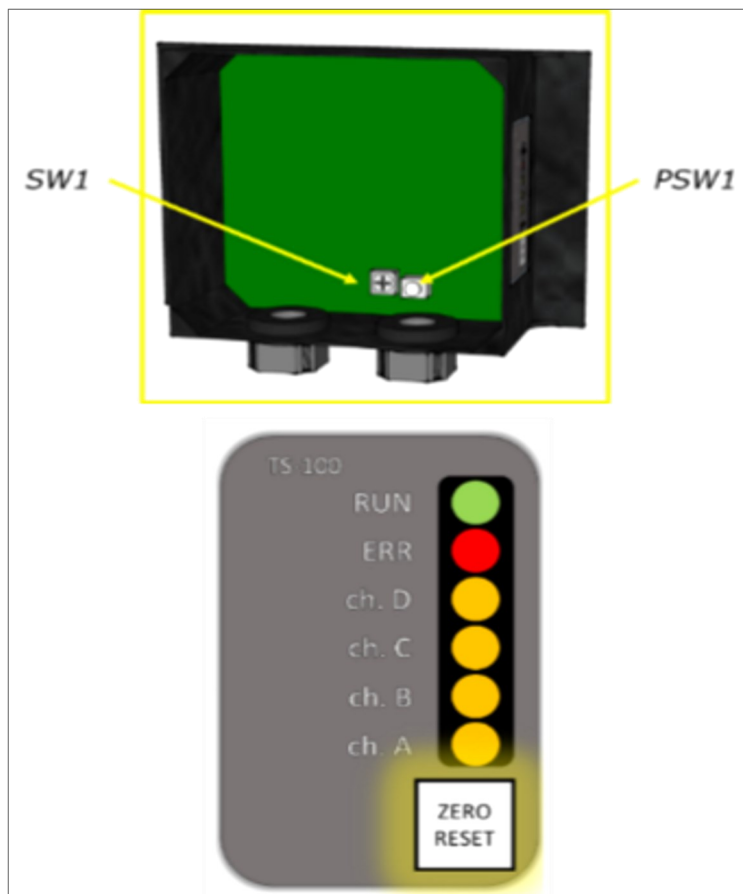
Tools and Equipment Needed

- ♦ 10mm Wrench
- ♦ Phillips-head screwdriver

1. Before beginning the Hard Reset, make sure you have performed the Soft Reset Procedure at least five times.
2. Remove the TPD Amplifier Access Cover (10mm) (Fig. 3).
3. Remove the TPD Amplifier Cover (Phillips-head).
4. As needed, push aside the internal wiring bundles to expose the SW1 and PSW1 Switches on the bottom of the TPD Amplifier's circuit board (Fig. 4).
5. Push and hold the SW1 Switch and the Zero Reset Button at the same time; hold until the TPD Error Alarm ceases; release the SW1 Switch and Zero Reset Button.
6. Allow the TPD to power-up and reboot (approximately 5 seconds).
7. If the TPD boots up normally, without the error alarm, replace both covers and return the SPYDERCRANE to normal operations.
8. If the TPD boots up with its Error Alarm, re-attempt the TPD Hard Reset.
9. If the TPD DOES NOT boot up normally after FIVE attempts, contact SLS Technical Support.



(Fig. 3): To access the TPD Amplifier, you will need to remove the sheet-metal cover.



(Fig. 4): You may need to move aside a wiring bundle to reveal the SW1 Switch.

Understanding CMU Codes: Common Codes and System Error Codes

Code	Definition	Resolution
0F	CMU is in standby and only the travel controls can be used.	Track Control Base has been rotated into the Storage, or Travel Setting.
00	The SPYDERCRANE is in Crane Mode/Remote Control	To return to Crane Control , use the Remote/Crane Toggle.
00	(Flashing) The local crane controls are being used while the SPYDERCRANE is in Remote Control	
01	SPYDERCRANE is in Crane Mode/Crane Control	To go to Remote Control, use the Remote/Crane Toggle
04	SPYDERCRANE is in Outrigger Mode/Remote Control	To return to Crane Control , use the Remote/Crane Toggle.
04	(Flashing) Crane Controls are being used with the SPYDERCRANE is in Outrigger Mode, or Outrigger Controls are being used while the SPYDERCRANE is in Crane Mode.	
05	SPYDERCRANE is in Outrigger Mode/Crane Control	To go to Remote Control, use the Remote/Crane Toggle
10	The A2B System has been activated.	During normal operations, this CMU Code is superseded by Code 15 (FKO)
10	(Flashing) BOOM UP, WINCH UP, SLEW, and/or BOOM OUT are being commanded while the A2B System is active.	
13	The Hook Store command has been activated.	The code indicates when the Hook Store Switch is held
15	Function Kick-Out (FKO): BOOM OUT, BOOM DOWN, WINCH UP, and SLEW are disabled	Can be triggered by a TPD Lockout, an activation of the A2B or Minimum Wire Rope Safety, or a general failure of one of the safety systems.
16	The CMU is broadcasting a TPD Warning	TPD Amplifier is indicating that the SPYDERCRANE is at 80% stability imbalance; no functions are impacted until TPD Lockout (90% imbalance).
90	The Remote Emergency Stop has been triggered while the SPYDERCRANE is in Remote Control.	
96	The Minimum Wire Rope Safety has been activated.	Either WINCH UP to de-activate the Minimum Wire Rope Safety , or use the Overwind Override to bypass (if you are uninstalling the wire rope).
97	(Flashing) Outrigger Mode is being commanded while the Boom Stored Switch is inactive.	
99	The batteries in the Remote Controller are low	

Code	Definition	Resolution
17	The TPD is generating a critical error.	Either one of the components of the TPD (Amplifier, Load Cell) has an error, an electrical connection between the components has failed, or the TPD Amplifier has failed a Zero-Reset. Execute the CODE 17 TPD Reset Procedure.
42-50	General System Error	These error codes must be diagnosed by SLS maintenance.
51	Radio Remote Receiver Error	
52	Remote Controller Trigger is signaling at power-up	Ensure that NO buttons or switches are pushed until AFTER the CMU has booted up.
53-55	Remote Controller Command Switch is signaling at power-up	Ensure that NO buttons or switches are pushed until AFTER the CMU has booted up.
56-57	Remote Control Group System failure.	
60	Boom Angle Control Lever is not in neutral position at CMU boot-up/POST.	Ensure that NO buttons or switches are pushed until AFTER the CMU has booted up.
61	Winch Control Lever is not in neutral position at CMU boot-up/POST.	Ensure that NO buttons or switches are pushed until AFTER the CMU has booted up.
62	Telescope Control Lever is not in neutral position at CMU boot-up/POST.	Ensure that NO buttons or switches are pushed until AFTER the CMU has booted up.
63	Slew Control Lever is not in neutral position at CMU boot-up/POST.	Ensure that NO buttons or switches are pushed until AFTER the CMU has booted up.
64	Manual Control (Outrigger Control Lever) is not in neutral position at CMU boot-up/POST.	Ensure that NO buttons or switches are pushed until AFTER the CMU has booted up.
65	Accelerator (internal spool) is not in neutral position at CMU boot-up/POST.	Contact SLS Maintenance.

Using this Guide

This Operator's Reference Guide specifically covers the 090– and 200-Series SPYDERCRANE, which includes the URW094, URW095, URW205, and URW295, as well as the “S” variants of the URW095 and URW205.

Comments/Concerns

This Operator's Reference Guide for the 090- and 200-Series SPYDERCRANES is supplementary reference guide for operating and sustaining your SPYDERCRANE. Smiley Lifting Solutions relies on customers like you to comment on errors and provide advice on how to further develop this guide.

If you have questions, or concerns, contact SLS Training at:

James@smileylifting.com

(602) 513-0204