

OPERATOR'S REFERENCE GUIDE

300-/500-/700-SERIES



Use this Guide with the Following SPYDERCRANE Models:

URW306

URW306-T

URW376

URW506

URW547

URW706

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Forward

This Operator's Reference Guide for the 300-, 500-, and 700-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

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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 URW547 equipped with a Yanmar diesel powerplant is called the URW547C4URS.

URW547C4URS

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 right side of the turret.

Model Number	Description
URW306 URW376	◆ The URW306 is a fixed-cab, telescoping boom mini-crawler crane with six boom sections. ◆ It has a maximum rated load capacity of 5,800 lbs. ◆ The URW376 is otherwise identical but its rated load capacity is increased to 6,680 lbs.
URW306Cxxx-T	◆ The "Dash-Tee" is a stripped down variant of the URW306 ◆ The Dash-Tee loses the crane management unit and load moment indicator of the URW306, but gains the turnover protection device like the 095-/200-series. ◆ It has a maximum rated load capacity of 5,800 lbs.
URW547	◆ The URW547 has 59' and seven sections of boom with a rated load capacity of 8,920 lbs.
URW706	◆ The URW706 is the largest SPYDERCRANE with 63' of boom and rated load capacity of 13,300 lbs.
xxxxxxC4URS	◆ Diesel engine. ◆ This is the standard powerplant for the 300-, 500-, and 700-series.
xxxxxxCMURS	◆ Diesel engine plus 220V Electrical. ◆ The CMURS suffix indicates the addition of 220V Electrical auxiliary powerplant. ◆ The 220V requires a constant connection to shore power to work.
xxxxxxCBURS	◆ Diesel engine plus 110V Battery-Electrical. ◆ The CBURS suffix indicates the addition of 110V Battery-Electrical auxiliary 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 information. Machine translated from Japanese, UNIC-supplied manuals can be challenging to read.

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.

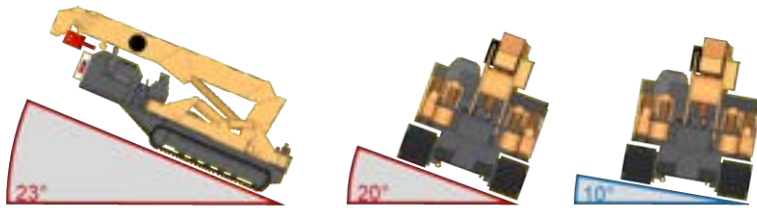
Your SPYDERCRANE's Traveling Specifications and Performance

URW306/376/306-T	
Tracks	Steel-Core Rubber
	12 inches x 69 inches (on-ground) x 2
	828 square inch contact patch
Dimensions	14.24' x 4.24' x 5.91' (L x W x H)
Weights and Loadings	8,670lbs. (dry)
	5.3 PSI Ground Pressure
Engine	Yanmar diesel, 20.4hp at 2500 rpm
Hydraulic Pump	3,130 PSI (Traveling) 2990 PSI (Lifting)
	15.9 gal./minute (19.8 gal. tank capacity)
	2500 RPM, Variable-Delivery Piston Pump
Performance	3.5 MPH maximum

URW506	
Tracks	Steel-Core Rubber
	12 inches x 69 inches (on-ground) x 2
	828 square inch contact patch
Dimensions	14.24' x 4.27' x 5.9' (L x W x H)
Weights and Loadings	10,935lbs. (dry)
	6.8 PSI Ground Pressure
Engine	Yanmar diesel, 20.4hp at 2500 rpm
Hydraulic Pump	3,130 PSI (Traveling) 2990 PSI (Lifting)
	15.9 gal./minute (19.8 gal. tank capacity)
	2500 RPM, Variable-Delivery Piston Pump
Performance	3.5 MPH maximum

URW547	
Tracks	Steel-Core Rubber
	12 inches x 69 inches (on-ground) x 2
	828 square inch contact patch
Dimensions	16.2' x 4.5' x 6.5' (L x W x H)
Weights and Loadings	11,090 lbs. (dry)
	6.8 PSI Ground Pressure
Engine	Yanmar diesel, 20.4hp at 2500 rpm
Hydraulic Pump	3,130 PSI (Traveling) 2990 PSI (Lifting)
	15.9 gal./minute (19.8 gal. tank capacity)
	2500 RPM, Variable-Delivery Piston Pump
Performance	3.5 MPH maximum

URW706	
Tracks	Steel-Core Rubber
	16 inches x 88 inches (on-ground) x 2
	1408 square inch contact patch
Dimensions	18.4' x 5.24' x 7.16' (L x W x H)
Weights and Loadings	17,590lbs. (dry)
	12.6 PSI Ground Pressure
Engine	Yanmar diesel, 31.2hp at 2500 rpm
Hydraulic Pump	3,553 PSI (Traveling) 2987 PSI (Lifting)
	21.4 gal./minute (31.7 gal. tank capacity)
	2500 RPM, Variable-Delivery Piston Pump
Performance	3.1 MPH maximum

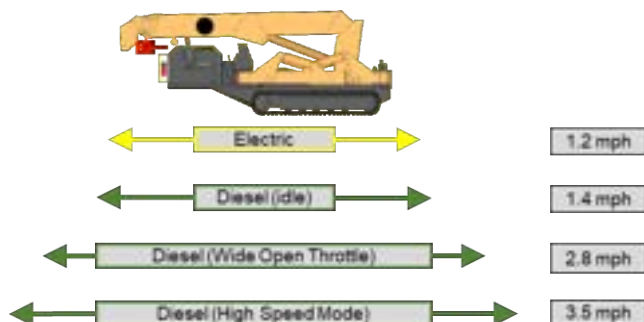


Your SPYDERCRANE is capable of traveling up inclines of up and down 23-degrees. It can also maintain stability when the lateral (side-side) angle of 20-degrees on prepared surfaces and 10-degrees on loose earth.

The maximum traveling speed of your SPYDERCRANE depends on which powerplant you are using. When traveling on either the 110V Battery-Electric or 220V Electrical powerplants, your maximum travel speed on flat ground is 1.2 mph.

When using the diesel powerplant, traveling at idle will allow the SPYDERCRANE to travel up to 1.4 mph on flat ground. Increasing the engine's RPMs to maximum (wide-open throttle) will increase the SPYDERCRANE's traveling speed to 2.8 mph. Traveling at wide-open throttle and going into high-speed mode will top out the SPYDERCRANE at 3.5 mph.

There is some variation between the SPYDERCRANES when it comes to travel speed with the lighter URW306/URW376 being the fastest and the heavyweight URW706 being the slowest.



Your SPYDERCRANE's Lifting Specifications and Performance

URW306/URW306-T	
Rated Capacity	5,800 lbs. @ 8 ft.
Lifting Height	48.9 ft.
Boom Length	11.9 to 47.9 ft.
Max Working Radius	47.4 ft.
Max Hoist Speed	55.8 ft/min (at 4th layer, w/ 4-Part Hook)
Max Boom Extend	36 ft. in 23 seconds
Max Boom Angle Up	8°/second
Max Slew Speed	2.5 RPM
Slew Range	360° continuous
Contact Patch	Foot: 10" x 6.38" (63.8 square inches) x 4

URW506	
Rated Capacity	5,800 lbs. @ 12.1 ft.
Lifting Height	49.9 ft.
Boom Length	12.9 to 50.5 ft.
Max Working Radius	49.9 ft.
Max Hoist Speed	45.9 ft/min (at 5th layer, w/ 4-Part Hook)
Max Boom Extend	38 ft. in 35 seconds
Max Boom Angle Up	4.4°/second
Max Slew Speed	2.5 RPM
Slew Range	360° continuous
Contact Patch	Foot: 10" x 6.38" (63.8 square inches) x 4

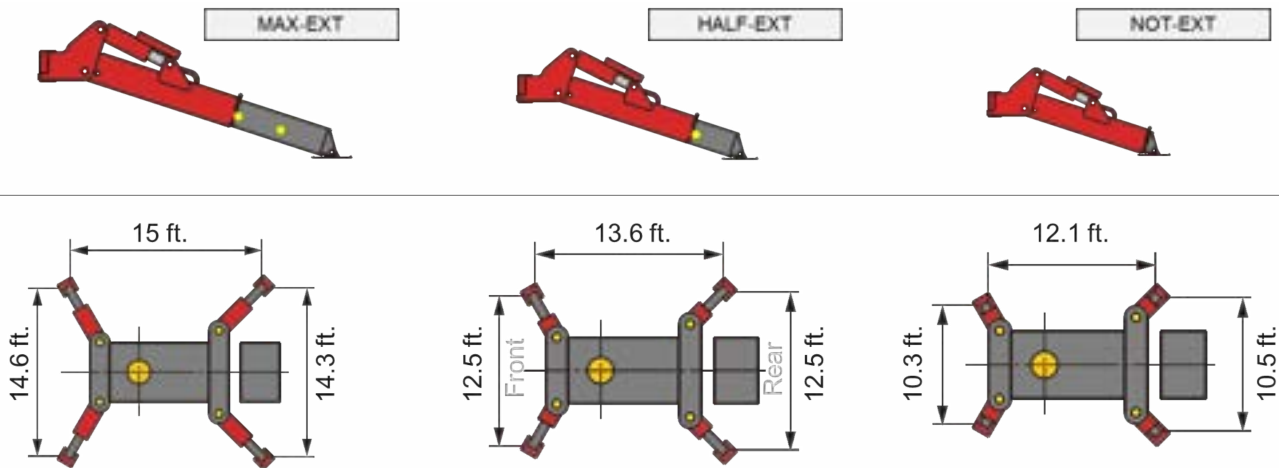
URW706	
Rated Capacity	13,220 lbs. @ 9.8 ft.
Lifting Height	64 ft.
Boom Length	15.7 to 63 ft.
Max Working Radius	61 ft.
Max Hoist Speed	36.1 ft/min (at 4th layer, w/ 4-Part Hook)
Max Boom Extend	47.2 ft. in 52 seconds
Max Boom Angle Up	5°/second
Max Slew Speed	2.5 RPM
Slew Range	360° continuous
Contact Patch	Foot: 14" x 8.2" (114 square inches) x 4

URW376	
Rated Capacity	6,680 lbs. @ 8 ft.
Lifting Height	48.9 ft.
Boom Length	11.9 to 47.9 ft.
Max Working Radius	47.4 ft.
Max Hoist Speed	55.8 ft/min (at 4th layer, w/ 4-Part Hook)
Max Boom Extend	36 ft. in 23 seconds
Max Boom Angle Up	8°/second
Max Slew Speed	2.5 RPM
Slew Range	360° continuous
Contact Patch	Foot: 10" x 6.38" (63.8 square inches) x 4

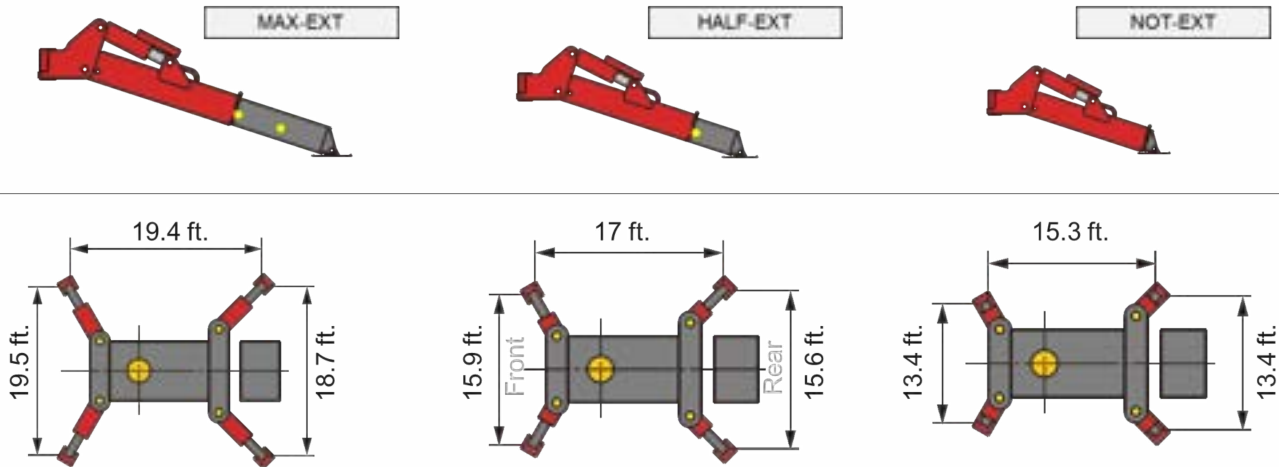
URW547	
Rated Capacity	8,920 lbs. @ 8 ft.
Lifting Height	59.7 ft.
Boom Length	13.1 to 59.1 ft.
Max Working Radius	58.5 ft.
Max Hoist Speed	45.9 ft/min (at 5th layer, w/ 4-Part Hook)
Max Boom Extend	46 ft. in 35 seconds
Max Boom Angle Up	4.4°/second
Max Slew Speed	2.5 RPM
Slew Range	360° continuous
Contact Patch	Foot: 10" x 6.38" (63.8 square inches) x 4

Your SPYDERCRANE's Deployment Footprint Dimensions

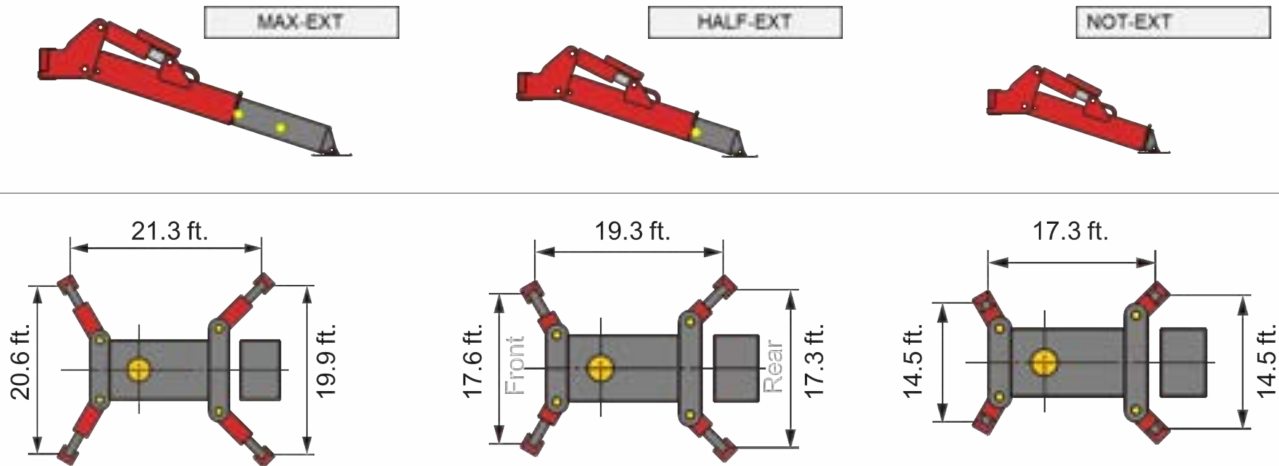
URW306-T - URW306 - URW376



URW506 - URW547

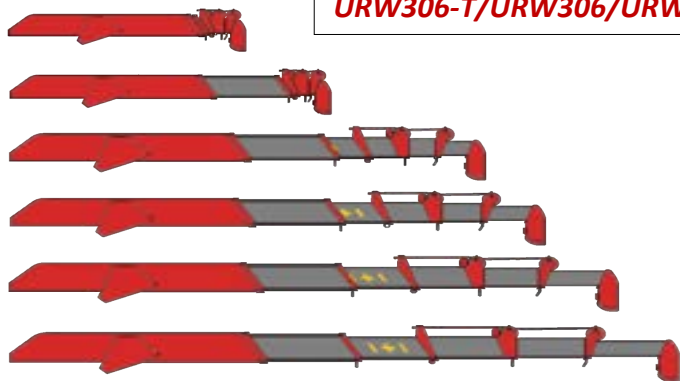


URW706



Your SPYDERCRANE's Boom Length Stages

URW306-T/URW306/URW376



Stage 1: 11.9 feet

Stage 2: 12-19.1 feet

Stage 3: 19.2-26.3 feet

Stage 4: 26.4-33.5 feet

Stage 5: 33.6-40.7 feet

Stage 6: 40.8-47.9 feet

Stage 1: All Sections retracted

Stage 2: Section Two is extended

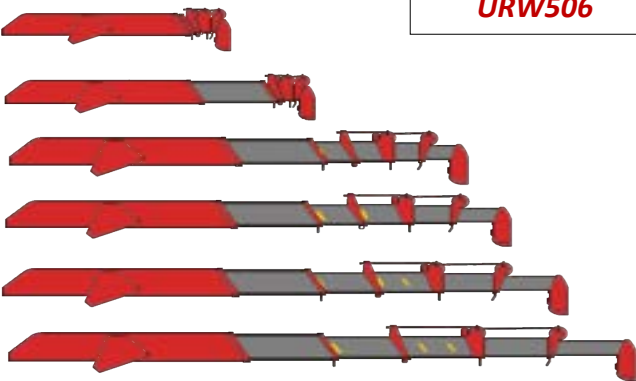
Stage 3: Sections Three, Four, Five, and Six are extended to Section Three hash mark

Stage 4: Sections extended to Section Three cross mark

Stage 5: Sections extended to Section Three *SECOND* hash mark

Stage 6: All Sections extended

URW506



Stage 1: 12.9 feet

Stage 2: 13-20.7 feet

Stage 3: 20.8-28.5 feet

Stage 4: 28.6-36.2 feet

Stage 5: 36.3-43.8 feet

Stage 6: 43.9-50.5 feet

Stage 1: All Sections retracted

Stage 2: Section Two extended

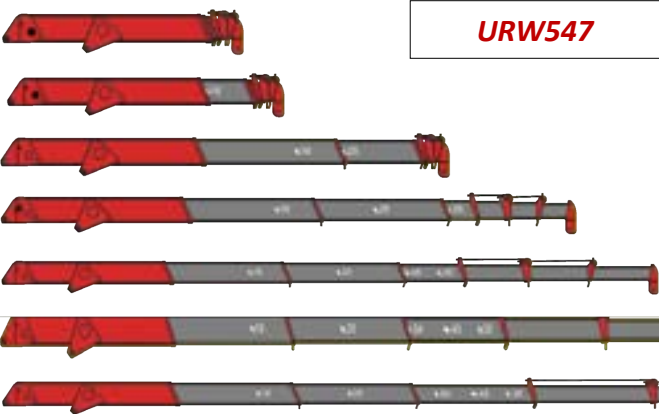
Stage 3: Sections Three, Four, Five, and Six are extended to Section Three hash mark

Stage 4: Sections extended to Section Four hash mark

Stage 5: Sections extended to Section Four *SECOND* hash mark

Stage 6: All Sections extended

URW547



Stage 1: 13.1 feet

Stage 2: 13.2-15.5 feet

Stage 3: 15.6-25.2 feet

Stage 4: 25.3-35 feet

Stage 5: 35.1-44.5 feet

Stage 6: 44.6-54 feet

Stage 7: 54.1-59.1 feet

Stage 1: All Sections retracted

Stage 2: Section Two extended to "16"

Stage 3: Section Three extended to "25"

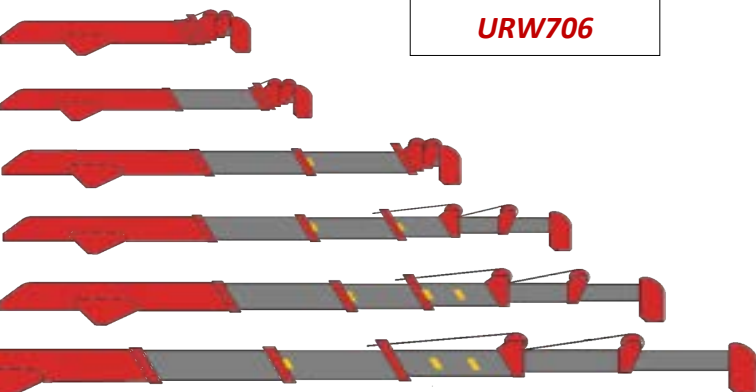
Stage 4: Sections Four extended to "35"

Stage 5: Section Four extended to "45"

Stage 6: Section Four extended to "54"

Stage 7: All Sections extended

URW706



Stage 1: 15.7 feet

Stage 2: 15.8-25.2 feet

Stage 3: 25.3-34.7 feet

Stage 4: 34.8-44.2 feet

Stage 5: 44.3-53.4 feet

Stage 6: 53.5-63 feet

Stage 1: All Sections retracted

Stage 2: Section Two is extended

Stage 3: Section Three extended to first hash mark

Stage 4: Sections Four, Five, and Six are extended to Section Four hash mark

Stage 5: Second Section Three hash mark exposed

Stage 6: All Sections extended

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
Load Moment Indicator (LMI)	- The LMI is bolt-on operator aid composed of a series of sensors connected to a central computer and an operator interface called the LMI Display. - The LMI provides real-time data on the SPYDERCRANE's configuration, including its rated load capacity and the weight of the attached load. - All SPYDERCRANES in these series are equipped with LMIs EXCEPT for the URW306-T.
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

Operator Aids (continued)

System	Description
Turnover Prevention Device (URW306-T ONLY)	◆ 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 it is nearing its stability limits (do to overloading, or boom movement).

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 TPD.

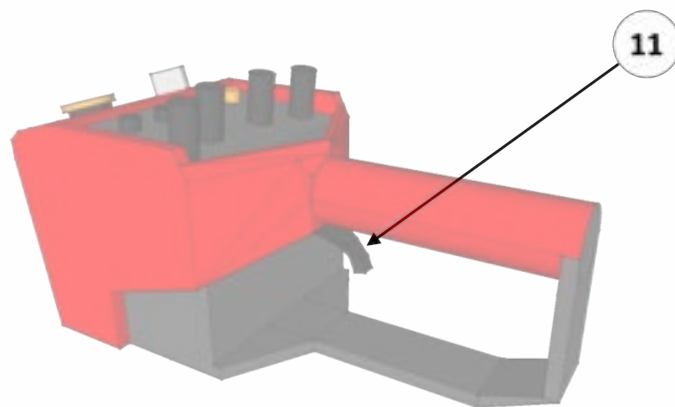
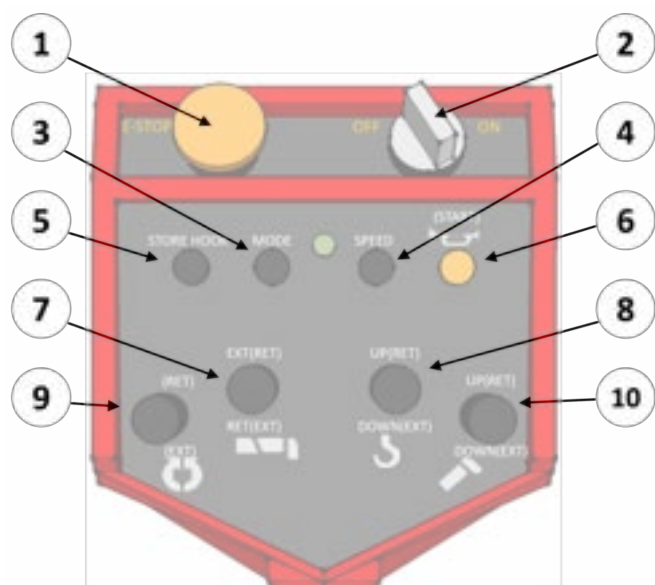
While all of the audible alarms and indicators can be switched off, doing so WILL reduce your situational awareness. Audible alarms and indicators should ONLY be turned off when the SPYDERCRANE is being operated where noise controls are in effect.

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
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.

The LMI System

If your SPYDERCRANE is equipped with a Load Moment Indicator, or LMI (all models except the 306-T), you will need to understand how to set it up and use for lifting operations. The LMI is actually composed of four major groups, the LMI Computer, the LMI A2B Cord Reel and Cord, the various sensors that report to the LMI Computer, and the LMI Display. The LMI Display is the component that you, as the operator, will work with on a daily basis.

The LMI Display is installed into its own console, which is installed on top of the Forward Console of the Operator's Station. When the boom is stored, it sits to the roadside of the LMI Console. Before going over how to set-up and use the LMI Display, let's go over the controls and features of the LMI Display.

LMI Display Controls

The LMI Display is the operator interface for the LMI system.

1. The LMI Screen:

This is the color LED screen that you will use to view your SPYDERCRANE's operational configuration and status.

2. The Selection Dial

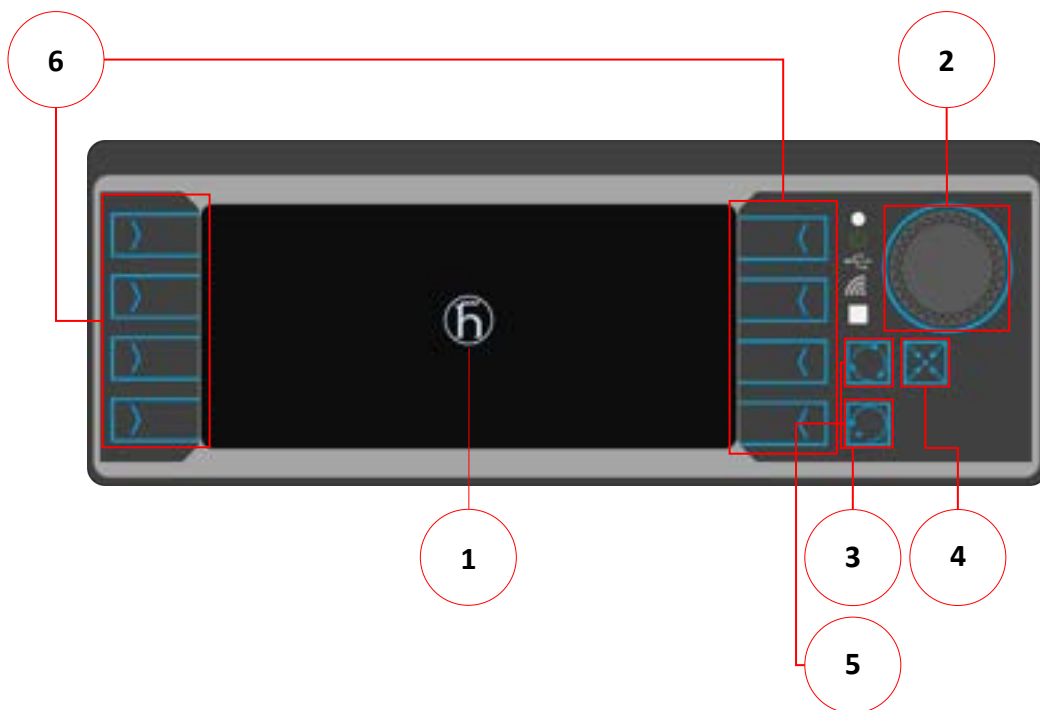
The selection dial is used to scroll through menus and screens.

3. Set Enter Fixed-Function Switch

This FFS is used to enter and save any configuration changes you make, depending on the menu you are in.

4. Back to Ops Screen Fixed-Function Switch

This FFS, when pushed, will exit whatever menu/screen you are using and return the display to the Operations Screen, without saving any changes you've made.



LMI Display Controls (continued)

5. Back-One-Screen Fixed-Fixed Switch

This FFS, when pressed, will back the display up one menu/screen, without making any configuration changes.

6. Variable-Function Switches

These eight switches, which flank the sides of the LMI Screen, have their functions change based on what is displayed on the screen.

The LMI at Start-Up and how it is Connected to the SPYDERCRANE

As soon as you start the SPYDERCRANE, the LMI will begin its own start-up sequence. If uninterrupted, the LMI takes around 45 seconds to go from off to fully started-up and ready for use. Since the LMI is a bolt-on operator aid, it is not affected by the SPYDERCRANE's mode of operation, EXCEPT that if you push down on the Travel Control Interlock (to use the travel controls) power will be disconnected from the LMI, interrupting its start-up.

During the LMI's start-up sequence, you will see the LMI Display's screen flash through multiple screens and menus. During this boot-up and software loading process, you should not touch any of the LMI Display controls OR any of the SPYDERCRANE's crane controls. You can still control the outriggers without affecting the LMI.

The LMI is connected to the Crane Management Unit (CMU) of the SPYDERCRANE through a single circuit. When the LMI detects an internal fault or an alert condition for the SPYDERCRANE (like an A2B condition), it triggers the CMU to generate a CODE 15 Function Kick-Out (FKO). The CMU does not communicate to the LMI. While the SPYDERCRANE can operate WITHOUT the LMI, if the LMI is damaged it will continue to trigger the CMU to CODE 15; in order to use the SPYDERCRANE with a non-functional LMI, the LMI will need to be disconnected from the SPYDERCRANE.

The LMI at Start-Up

After you have completed deploying the outriggers and you've placed the SPYDERCRANE into Crane Mode, the CMU Code Indicator of your SPYDERCRANE will be displaying CODE 15 (Function Kick-Out). During CODE 15, BOOM OUT, BOOM DOWN, SLEW, and WINCH UP are all disabled (the functions have been locked-out). The CODE 15 is being generated for two reasons, the first is that Boom Stored Safety is ENGAGED and the LMI is sending an alert to the CMU. In this case, the LMI is alerting the CMU because it has not been properly configured for crane operations.



LMI Operations Mode Screen

This screen is displayed after the LMI has completed its start-up. If there is a red question-mark superimposed, like it is in this image, the LMI has no configuration data saved and it requires configuring. If there is no question-mark, then there is configuration data already saved and you only need to confirm the data (or change it, as required). Expect to see the question-mark when you use the LMI for the first time that day or after the SPYDERCRANE has been OFF for more than two hours.

On the sides of the LMI Operations Mode Screen, you can see square icons next to five of the Variable-Function Switches (VFS), this indicates that a function has been assigned to these five VFS.

1. Go to System Setup VFS

This VFS, when pushed, will take you to the System Setup Screen for the LMI. System Setup is NOT THE SAME as configuration; system setup is reserved for higher-level maintenance functions. You only go to System Setup if you needed to make adjustments on a newly installed system, or LMI component.

2. Go to System Information VFS

This VFS, when pushed, will take you to the System Information Screen for the LMI. Like System Setup, this screen is reserved for higher-level maintenance actions. Typically, maintenance personnel who go through this screen to find specific diagnostics data; usually by being prompted by an LMI Alert.

3. Go to Crane Configuration VFS

This VFS, when pushed, will take you to the Crane Configuration Screen. To configure the crane, in this context, is to identify several key characteristics into the LMI that will allow it monitor the SPYDERCRANE's safety and stability. The Crane Configuration Screen is where you would enter in the configuration data for the SPYDERCRANE's Deployment State, whether it is using its main boom or an extension jib, and whether it has been equipped with an Aerial Work Platform. Every model SPYDERCRANE is different, so the LMI will only allow you to make configuration changes suitable for your SPYDERCRANE. For instance, the URW547 will NOT have an option for a jib while the URW706 has multiple Jib and Main Boom options. We will cover how to properly configure your SPYDERCRANE later in this guide.

4. Select Part-of-Line VFS

The icon next to this VFS shows a hook graphic with a white text number. Every time you push this VFS, the number value will go up by one. The valid entries are 1 through 4. For 300-, 500-, and 700-Series, the primary hook block is the 4-Part Hook Block and the 1-Part Hook Block is an optional secondary hook block option. We will cover configuring parts-of-line later in this guide.

5. Alerts Acknowledge VFS

This VFS, when pushed, will take you to the Alerts Acknowledge Screen, which displays any and all alerts being generated by the LMI.

Configuring the LMI for First-Time Use

If you are using the SPYDERCRANE for the first time that day, you will need to configure the LMI for use.

After the LMI has completed its start-up sequence, it will display the Configuration Required Screen. The Configuration Required Screen has faint line drawing of the deployed SPYDERCRANE in the background and a large red question mark in the foreground. Since the LMI has not been configured, the CMU will also be generating a CODE 15. To begin using the SPYDERCRANE for lifting operations, you will need to configure the LMI.



The first step is to press the Go To Crane Configuration VFS...



The Crane Configuration Screen VFS's

The Crane Configuration Screen contains all of the user-selectable crane configuration options for your specific SPYDERCRANE. Depending on your model SPYDERCRANE, you may see different options than the ones depicted in this graphic, which is from a URW376. At a minimum, you will need to configure the Deployment State and whether an AWP is installed.

1. Configure Deployment State VFS

When you press this VFS, you will be taken to the Configure Deployment State Screen, which identifies the available Deployment States for your SPYDERCRANE.

2. Configure AWP Status VFS

When you press this VFS, you will be taken to the Configure AWP Status Screen, where you will select whether you have installed an AWP.

3. Configure Searcher Hook Status VFS

When you press this VFS, you will be taken to the Configure Searcher Hook Status Screen, where you will select whether you have installed a Searcher Hook.

3. Configure Boom Status VFS

When you press this VFS, you will be taken to the Configure Boom Screen, where you will select a boom and jib configuration from the available options. For every SPYDERCRANE OTHER than the URW706, the Configure Boom Screen will have VFS's that display the available boom and jib tilt options.

5. Selection Dial FFS

For the URW706, there are more than eight different boom and jib installation and tilt options. When configuring the boom of the URW706, you will use the Selection Dial FFS to scroll through the various options. The name of the option will be displayed in the text box on the top of the screen and the image in the center of the screen will depict the selected option.

Selecting and Saving a Crane Configuration Option

When you push one of the go to option configuration VFS's, you will be taken to the appropriate configuration screen where you need to select the appropriate configuration option AND save it...

Configuring the Deployment State

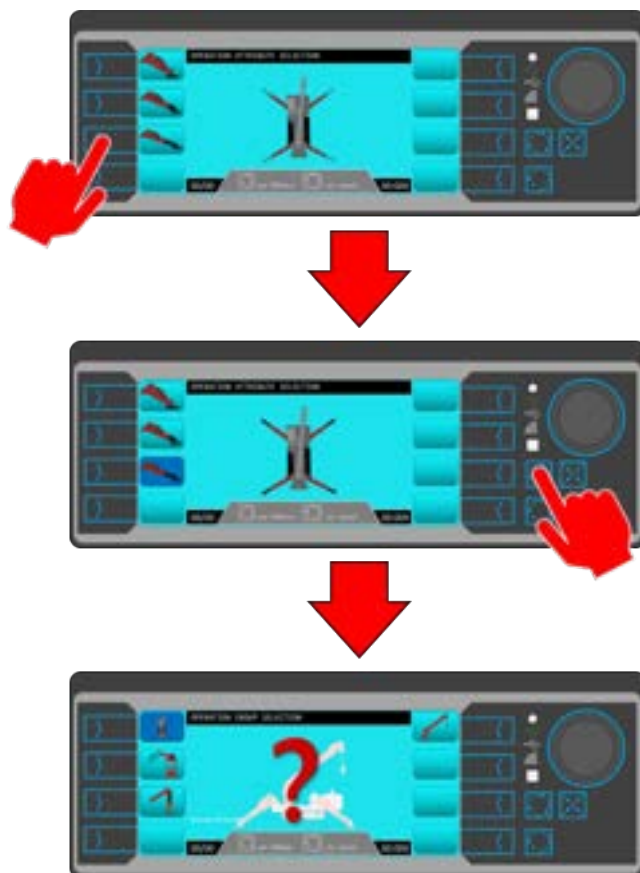
The Deployment State Configuration Screen shows a notional deployed SPYDERCRANE from an overhead view. Each selectable Deployment State will have its own icon and VFS on the left side of the LMI Screen. In most cases, there will be three available Deployment States: NOT-EXT, HALF-EXT, and MAX-EXT.

When you select the Deployment State Configuration VFS that matches your SPYDERCRANE's actual Deployment State, the icon next to the VFS will switch to a dark blue background.

Once you have selected the Deployment State that you want, you will need to push the Set Enter VFS TWICE, once to set the configuration you have selected and again to save it to the LMI Computer.

If you have successfully configured the Deployment State, the LMI Screen will revert to the Crane Configuration Screen and the Configure Deployment State VFS will have a dark blue background to its icon. This signals to you that the Deployment State has been configured and that you can move on to the next crane configuration option.

When selecting a Deployment State configuration in the LMI, it is important that you select the Deployment State that the SPYDERCRANE is actually in. As a safety measure, the LMI system monitors limit switches associated with the horizontal extension cylinder of the outriggers and it can determine whether the outriggers have actually been deployed to MAX-EXT, HALF-EXT, or NOT-EXT. If the LMI detects that the Deployment State of the outriggers IS NOT the same as the one that you selected in the configuration screen, it will index the load chart appropriate for the Deployment State that the LMI has determined is correct.

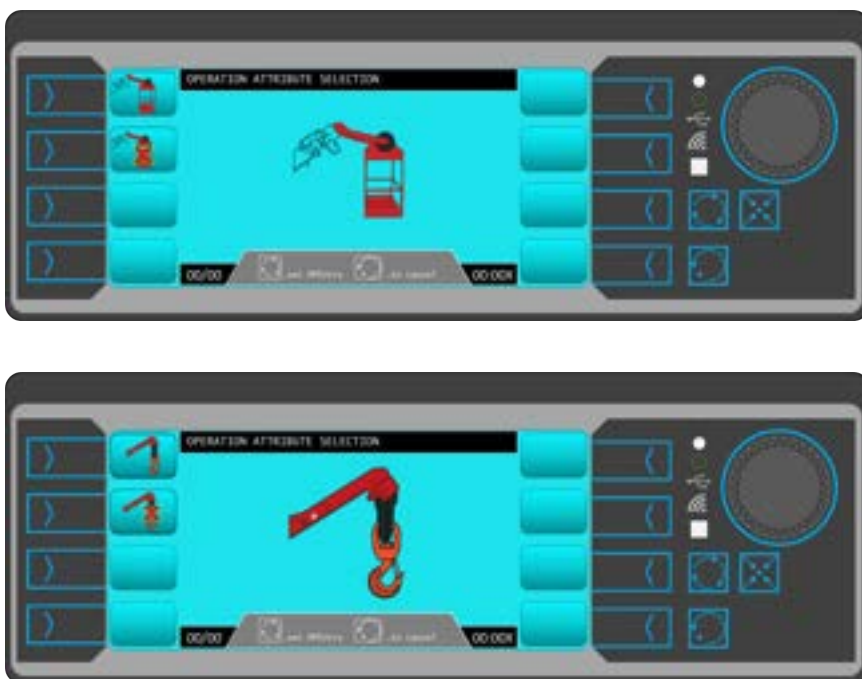


Configuring the Searcher Hook and AWP Status

Setting the Searcher Hook and AWP installation status works exactly the same way, so we will describe them together.

When you select the Configure AWP/Searcher Hook Status VFS, you will be taken to the appropriate status configuration screen. For both the AWP and the Searcher Hook, the choices are either one is equipped or one is not equipped.

Select the appropriate VFS, which will turn the icon next to the VFS dark blue and then push the Set Enter FFS twice to save the configuration selection and return to the Crane Configuration Screen.



Configuring the Boom and Jib Status

Again focusing on the URW376, when you select the Boom and Jib Configuration Screen, you will need to select the boom and jib configuration of your SPYDERCRANE. For the URW376, you have five options: main boom (jib stored), jib installed at Tilt Angle 0°, jib installed at Tilt Angle 20°, jib installed at Tilt Angle 40°, or jib installed at Tilt Angle 60°.

When you select a VFS on this screen, icon next to the VFS will have a dark blue background, and pressing Set Enter FFS twice will save the selected configuration and return you to the Crane Configuration Screen.

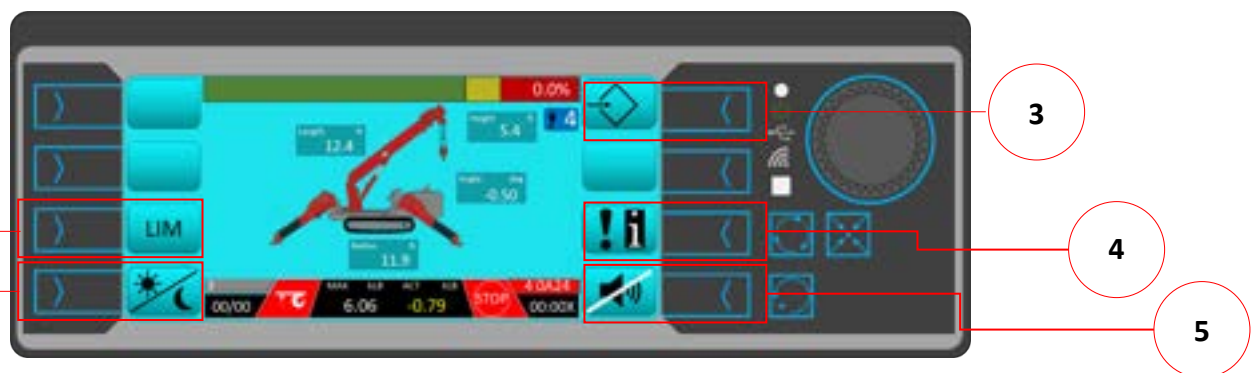
If you have configured all of the selectable configuration options, the available VFS's will all have dark blue backgrounds, indicating that the configuration item has been saved. Pressing the Set Enter FFS will return you to LMI Operations Mode Screen.



Completing the Crane Configuration

When you return to the LMI Operations Mode Screen, the superimposed question-mark will be gone. From this screen, you need to set the parts-of-line that will correspond the installed Hook Block (either 1-Part or 4-Part).

Push the Parts-of-Line VFS until the number matches and then push the Set Enter FFS twice to go to the Operations Screen.



The Operations Screen VFS's

The Operations Screen is the one you will use the most when operating the SPYDERCRANE for crane operations. Before going over the details on the screen itself, we will go over the five active VFS's for the Operations Screen.

1. Set Crane Limits VFS

This VFS will take you to the Crane Limits Screen where you can set warnings based on boom angle, working radius, and tip height.

2. Brightness Control VFS

This VFS will increase the brightness of the LMI screen by 10%. There are six settings (50%, 60%, 70%, 80%, 90%, and 100%), and when you reach 100% brightness and press the VFS again, it will restart at 50% brightness.

3. Return to Operations Screen VFS

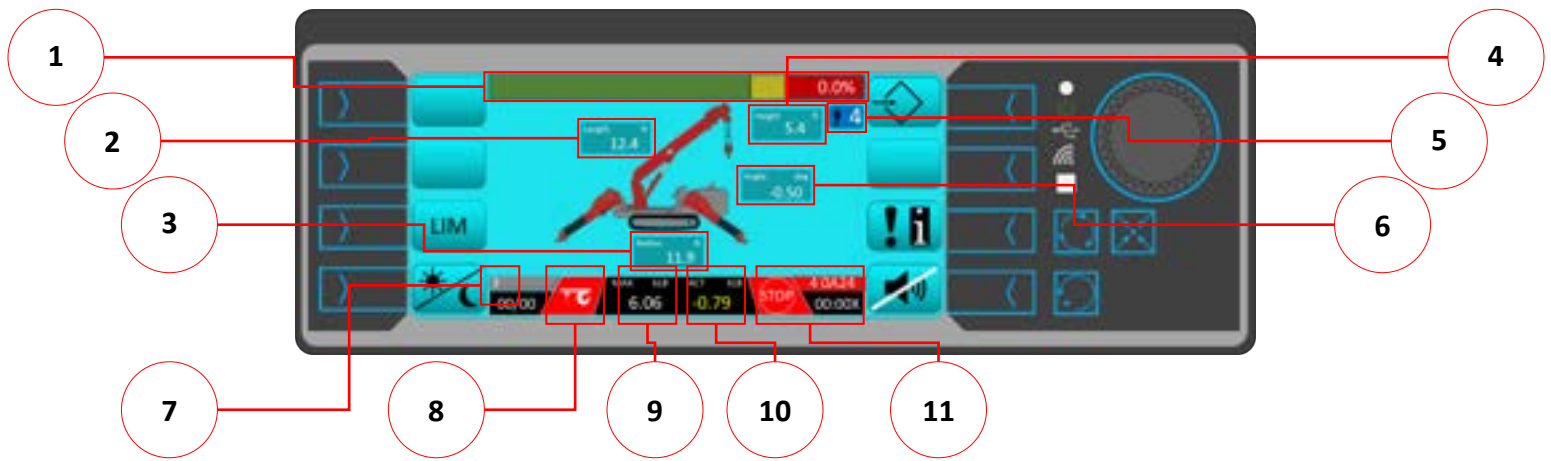
This VFS, when pressed, will return you to the Operations Screen without making configuration changes or saving changes in progress. This is a persistent VFS and will appear in multiple screens.

4. Alert Acknowledge VFS

This VFS, when pressed, will take you to the Alerts Screen of the LMI.

5. Mute Alarm VFS

This VFS, when pressed, will mute any alarm the LMI is generating through its internal speaker. If you mute an alarm and subsequently another alert is generated, a new alarm will sound and must be muted separately.



The Operations Screen Data Elements

The data elements on the Operations Screen are non-interactive data blocks that provide you situational awareness information on your SPYDERCRANE's current configuration, load capacity, and alert status.

1. Load Bar

The Load Bar is a three-color horizontal bar that provides an at-a-glance status of the SPYDERCRANE's overall stability as a function of its *load fraction*. Load fraction is the actual load weight being held by the SPYDERCRANE's boom divided by its rated load capacity and is expressed as a percentage.

As the load fraction increases, the Load Bar will begin to "light up" from the left-to-the-right. A load fraction of up to 79-percent will light up the green section of the Load Bar. A load fraction from 80-percent to 99-percent will light up the yellow section of the Load Bar. A load fraction of more than 99-percent will light up the red section of the Load Bar. The specific load fraction is displayed in a small text box in the right section of the Load Bar.

2. Boom Length Data Block

The Boom Length Data Block indicates the length of the boom in feet and tenths of feet. This boom is still in its stored condition so this the minimum boom length.

3. Working Radius Data Block

The Working Radius Data Block indicates the working radius of the SPYDERCRANE in feet and tenths of feet. Working radius is calculated from the boom length and boom angle of the SPYDERCRANE.

4. Tip Height Data Block

The Tip Height Data Block reports the calculated tip height of the SPYDERCRANE in feet and tenths of feet.

5. Installed Hook Block Indicator

This indicator displays the currently installed hook block.

6. Boom Angle Data Block

This data block indicates the boom angle in degrees and tenths of degrees. This boom is still stored so it is registering as half-a-degree below the horizontal.

7. Indexed Load Chart Indicator

The indexed load chart indicator displays the file number of the load chart that the LMI is using (indexed), which is based on the SPYDERCRANE's deployment state. "1" is the MAX-EXT load chart. "2" is the HALF-EXT load chart. "3" is the NOT-EXT load chart.

8. A2B Active Alert

During normal operations, this indicator is faded out. When the LMI detects an Anti-Two-Block (A2B) condition, the indicator lights up in bright red.

9. Rated Load Capacity Indicator

The rated load capacity indicator displays the rated load capacity of the SPYDERCRANE based on the deployment state/indexed load chart, working radius, boom length, and installed hook block (parts-of-line).

10. Actual Weight Indicator

The Actual Weight Indicator displays the approximate weight being held by the SPYDERCRANE's boom, including the hook block, rigging, and the part(s) of wire rope between the Sheave Pin and the hook block.

11. Alerts Pop-Up

The Alert Pop-Up appears on the bottom right of the screen and can be color-coded and contains a 4- to 6-digit alphanumeric code that can be diagnosed. Typically, a yellow background pop-up indicates a user-entered condition has been met (like an LMI Limit has been reached). A red background pop-up indicates an operations-halting alert, or error, condition exists within the LMI system.

Using the LMI

The LMI Operations Mode Screen versus the Operations Screen

- ◆ If the LMI starts-up and the LMI Mode Operations Screen has a red question-mark superimposed over the central graphic you **MUST** make configuration changes before you can go to the Operations Screen.
- ◆ If the LMI starts-up and the LMI Mode Operations Screen **DOES NOT** have a red question-mark superimposed over the central graphic you can go directly to the Operations Screen by pushing the Set Enter FFS.



Using the Load Bar

- ◆ The Load Bar tells you the SPYDERCRANE's load fraction, the closer your SPYDER-CRANE actual load weight is to its rated load capacity, the greater the fraction.
- ◆ When the Load Bar is in the red, the load fraction is 100% and the LMI will direct the CMU to execute a CODE 15 FKO; at that point you can only lower the load to ground or reduce the working radius.
- ◆ The Load Bar is functionally tied to the Safety Beacon, located on your SPYDERCRANE's roadside, on the outside of the Operator's Station; when you running the SPYDERCRANE in remote control, you can use the Safety Beacon to gain situational awareness: when the Safety Beacon's yellow lamp is lit, the load fraction is between 80% and 99%, for instance.

Understanding How the LMI Measures the Actual Load Weight

The LMI system includes a pair of transducers in the Lift Cylinder: one measures cylinder pressure at the base of the cylinder and the other measures pin pressure. When a load is attached to the end of the SPYDERCRANE's boom, that weight is applying pressure on the pin, forcing it into the cylinder. In response, the SPYDERCRANE's hydraulic system is applying hydraulic pressure in the cylinder to counteract the pin pressure. When the LMI is reporting an actual load weight, what it is actually measuring is the hydraulic pressure needed to overcome the pressure caused by the load weight.

When the load is moving, from either crane movement or from load swing, the extra momentum and kinetic energy is going to increase pressure and the actual load weight reading on the LMI will increase, or oscillate up and down. The actual load weight reading is most accurate when the load is stationary.

Raising the Boom to Maximum and the CODE 15 FKO

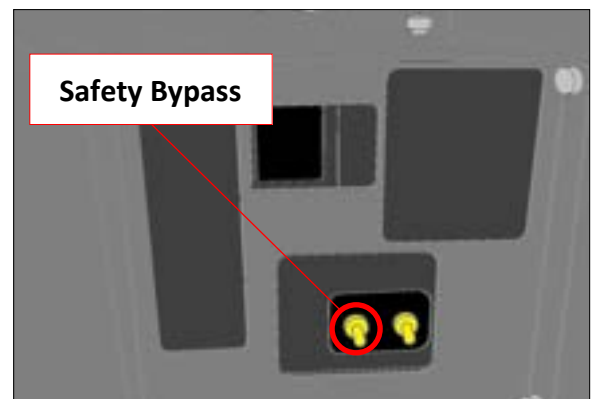
When you BOOM UP to maximum, the pin of the Lift Cylinder is extended to its physical limit ("bottomed out"). When this happens, the hydraulic system will attempt to compensate by adding more and more pressure to get the pin to move. Since the pin **CAN'T** move any further, even when the hydraulic system reaches its maximum safe pressure limit, the LMI will interpret this as an overload situation. Basically, the LMI will suddenly think that the load fraction has jumped to over 150% and it will generate an overloading alert. The LMI will send this alert signal to the CMU and the CMU will generate a CODE 15 FKO.

Recovering the SPYDERCRANE when the Boom is raised to 80°

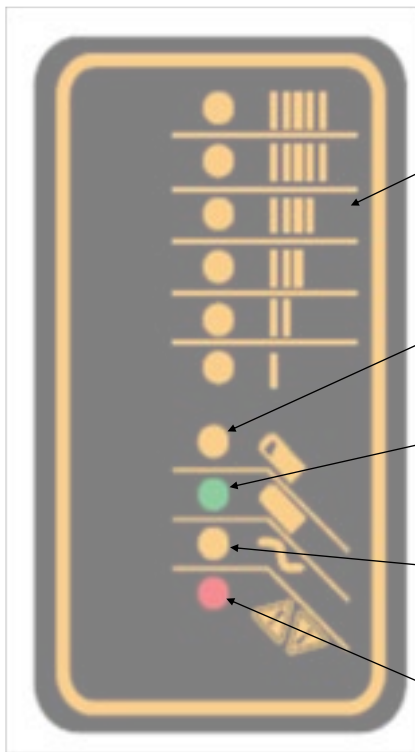
When the CMU is reporting CODE 15, all of the functions that would normally INCREASE working radius are disable ("kicked-out"). Unfortunately, this includes BOOM DOWN; meaning that you cannot recover the boom when it has been raised to 80°, by normal means. In this case, the only way you will be able to lower the boom is by temporarily disabling the CMU's safety functions.

Push and hold the Safety Bypass Switch to bypass ALL of the SPYDERCRANE's safety systems. While holding the Safety Bypass Switch with your left hand, you will need to use your right hand to command a BOOM DOWN. You only need to lower the boom three to seven degrees, so apply BOOM DOWN power SLOWLY. If you watch the LMI Load Bar, you will see it suddenly drop back into the green section; when this happens, you can release the Safety Bypass Switch and continue normal operations.

The Safety Bypass Switch is located between the Left-Side and Forward Consoles, below the CMU Code Indicator; next to your left knee.



The 110V Battery QuiQ Charger Status Panel



QuiQ Charger Status Panel

♦ AMMETER LAMPS (Bulk Charge State)

- ♦ Displays intensity of charge being pushed into the batteries at any given time (changes regularly).
- ♦ 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

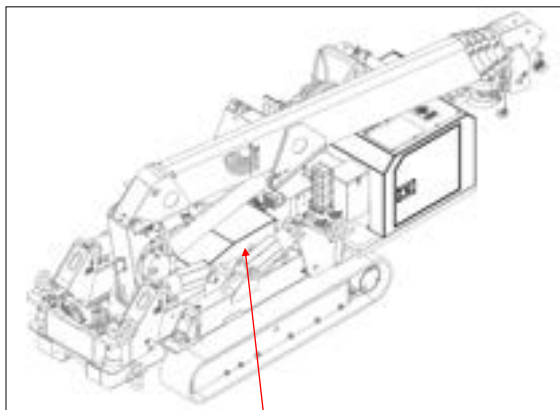
- ♦ If SOLID GREEN, batteries are charged, charger is in Maintenance Phase
- ♦ If FLASHING GREEN, the absorption charge phase is ended, and the finishing phase is in process.

♦ 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.



QuiQ Charger Status Panel

The QuiQ Charger and its battery array are installed to the top of the carrier, underneath the stored boom. The QuiQ Charger Status Panel can be viewed through a cutout on the battery array cover.

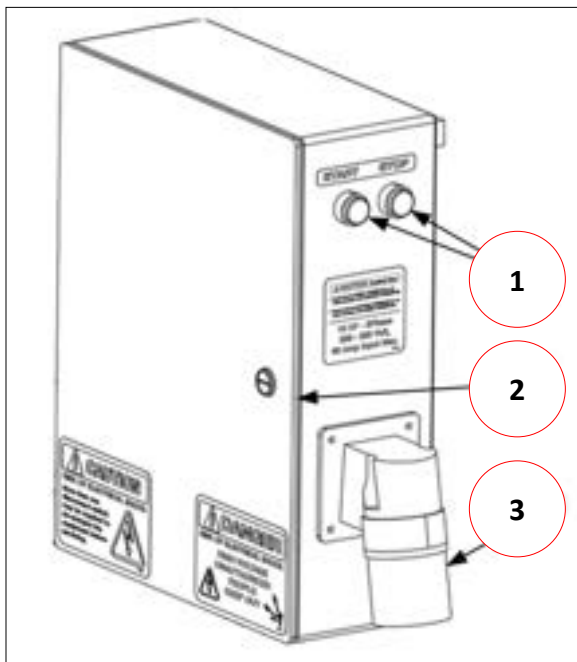
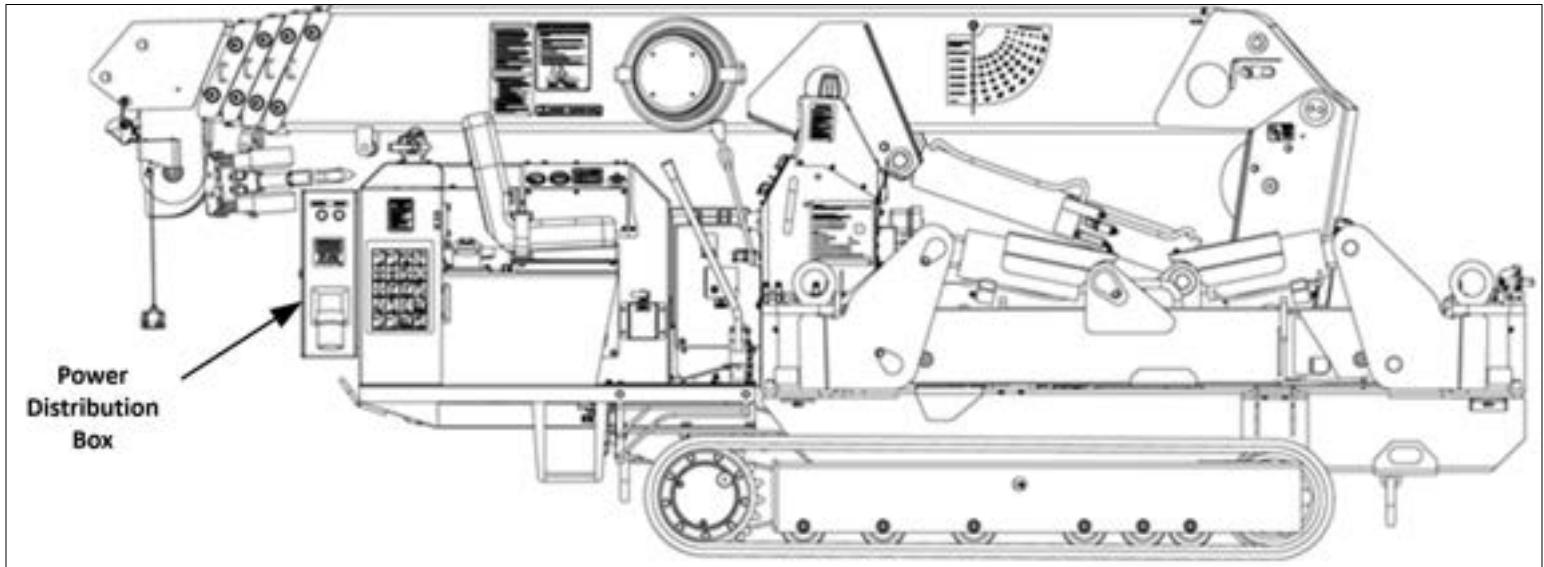
Depending on the build-date of your SPYDERCRANE, the status panel can be tucked in pretty far under the cover and you may need to unlock and move Outriggers #1 and #2 out of the way.

Regardless of the build date, the QuiQ Charger Status Panel is always viewable from the roadside of the SPYDERCRANE.

The 220V Electrical Powerplant and Power Distribution Box

The 220V Electrical Powerplant

If your SPYDERCRANE is equipped with the 220V Electrical Powerplant, you can run all of the SPYDERCRANE's functions, including traveling, while plugged in to a compatible 220V, 3-phase shore power source. On the back of the SPYDERCRANE Operator's Station, the Power Distribution Box (PDB).



The PDB

1. Start and Stop Buttons

After the 220V Electrical Powerplant's Power Distribution Box (PDB) has been plugged into an appropriate shore power source, pushing the green Start Button on the PDB will start the 220V Electrical Powerplant. The red Stop Button on the Power Distribution Box (PDB) of the 220V Electrical Powerplant will stop the electric motor of the powerplant. of the Load Bar.

2. PDB Door

The interior of the PDB can be accessed through this door. To open the door, insert a flat-head screwdriver into the door latch slot and turn counter-clockwise to unlatch.

3. Power Cord Port

This is the port for inserting the 220V Power Cord.

Daily Inspection (URW306, 306-T, 376, 506, 547)

Operator's Station		Sat.	Unsat.	N/A
Indicators/Alarms	Bubble Level is present and undamaged			
	Outrigger Mode alarm is ON			
	Voice Warning System is ON			
	TPD Alarm (if equipped) is ON			
Switches/Buttons	All present and undamaged			
Crane/Outrigger Control Levers	Control Levers are present, undamaged and centered			
Travel Control Levers	Travel Control Lock functions correctly			
	Control Levers are present, undamaged and centered			
LMI (if equipped)	LMI powers up when SPYDERCRANE is started			
Decals	All present and undamaged			
CMU Indicator (if equipped)	Working and undamaged			

Carrier Rear		Sat.	Unsat.	N/A
Hydraulic Oil Tank	Damage and corrosion			
	Oil level and consistency			
Boom Tip	A2B components present and undamaged			
	Sheaves are undamaged			
Hook	Safety Latch, corrosion, damage			
Wire Rope & Clip	Damage and corrosion			

Carrier Roadside		Sat.	Unsat.	N/A
1-Part Hook/Holder (if equipped)	Present, secure, safety latch, corrosion			
Engine Compartment	Engine oil level, coolant level, fuel/water separator			
Storage Compartment	Contents and structure			
Right-Side Jib (if equipped)	Damage and corrosion			
	Pins and retaining wires with clips			
Outrigger #1	Pin and Retaining Wire present and undamaged			
	Damage and corrosion			
	Hydraulic/electrical lines undamaged			
Right-Side Lift Cylinder	Damage and corrosion			
Right-Side Turret	Damage and corrosion			
	Winch Gear Box oil level and consistency			
	Wire Rope lays flat			
Right-Side Boom	Damage and corrosion			
Searcher Hook (if equipped)	Safety Latch, corrosion, damage			
	Pins and retaining clips			
Roadside Track	Track tension			
	Damage within tolerance			
Roadside Track Drive Sprocket	No damage			
	No leaks			
Outrigger #2	Pin and Retaining Wire present and undamaged			
	Damage and corrosion			
	Hydraulic/electrical lines undamaged			

Daily Inspection (URW306, 306-T, 376, 506, 547)

Carrier Front		Sat.	Unsat.	N/A
Headlamp	Working and undamaged			
Emergency Stop	Working and undamaged (disengaged)			

Carrier Curbside		Sat.	Unsat.	N/A
Outrigger #3	Pin and Retaining Wire present and undamaged			
	Damage and corrosion			
	Hydraulic/electrical lines undamaged			
Left-Side Turret	Damage and corrosion			
	Hydraulic/electrical lines undamaged			
Left-Side Lift Cylinder	Damage and corrosion			
	Hydraulic/electrical lines undamaged			
Cord Reel & Wire	Damage and corrosion			
Left-Side Boom	Damage and corrosion			
Left-Side Jib (if equipped)	Damage and corrosion			
	Pins and retaining wires with clips			
Curbside Track	Track tension			
	Damage within tolerance			
Curbside Track Drive Sprocket	No damage			
	No leaks			
Outrigger #4	Pin and Retaining Wire present and undamaged			
	Damage and corrosion			
	Hydraulic/electrical lines undamaged			

Daily Signoff														
Week 1			Week 2			Week 3			Week 4			Week 5		
Sat.	Unsat.	Eng. Hrs.	Sat.	Unsat.	Eng. Hrs.	Sat.	Unsat.	Eng. Hrs.	Sat.	Unsat.	Eng. Hrs.	Sat.	Unsat.	Eng. Hrs.

Daily Inspection (URW706)

Operator's Station		Sat.	Unsat.	N/A
Indicators/Alarms	Bubble Level is present and undamaged			
	Outrigger Mode alarm is ON			
	Voice Warning System is ON			
Switches/Buttons	All present and undamaged			
Crane/Outrigger Control Levers	Control Levers are present, undamaged and centered			
Travel Control Levers	Travel Control Lock functions correctly			
	Control Levers are present, undamaged and centered			
LMI	LMI powers up when SPYDERCRANE is started			
Decals	All present and undamaged			
CMU Indicator	Working and undamaged			

Carrier Rear		Sat.	Unsat.	N/A
Hydraulic Oil Tank	Damage and corrosion			
	Oil level and consistency			
Boom Tip	A2B components present and undamaged			
	Sheaves are undamaged			
Hook	Safety Latch, corrosion, damage			
Wire Rope & Clip	Damage and corrosion			
1-Part Hook/Holder	Present, secure, safety latch, corrosion			

Carrier Roadside		Sat.	Unsat.	N/A
Engine Compartment	Engine oil level, coolant level, fuel/water separator			
Storage Compartment	Contents and structure			
Jib	Damage and corrosion			
	Pins and clips stored properly (not on boom tip)			
Outrigger #1	Pin and Retaining Wire present and undamaged			
	Damage and corrosion			
	Hydraulic/electrical lines undamaged			
Right-Side Lift Cylinder	Damage and corrosion			
Right-Side Turret	Damage and corrosion			
	Wire Rope lays flat			
Right-Side Boom	Damage and corrosion			
Searcher Hook	Safety Latch, corrosion, damage			
	Pin and retaining clip			
Roadside Track	Track tension			
	Damage within tolerance			
Roadside Track Drive Sprocket	No damage			
	No leaks			
Outrigger #2	Pin and Retaining Wire present and undamaged			
	Damage and corrosion			
	Hydraulic/electrical lines undamaged			

Daily Inspection (URW706)

Carrier Front		Sat.	Unsat.	N/A
Headlamp	Working and undamaged			
Emergency Stop	Working and undamaged (disengaged)			

Carrier Curbside		Sat.	Unsat.	N/A
Outrigger #3	Pin and Retaining Wire present and undamaged			
	Damage and corrosion			
	Hydraulic/electrical lines undamaged			
Left-Side Turret	Damage and corrosion			
	Hydraulic/electrical lines undamaged			
Left-Side Lift Cylinder	Damage and corrosion			
	Hydraulic/electrical lines undamaged			
Cord Reel & Wire	Damage and corrosion			
Left-Side Boom	Damage and corrosion			
Curbside Track	Track tension			
	Damage within tolerance			
Curbside Track Drive Sprocket	No damage			
	No leaks			
Outrigger #4	Pin and Retaining Wire present and undamaged			
	Damage and corrosion			
	Hydraulic/electrical lines undamaged			

Daily Signoff														
Week 1			Week 2			Week 3			Week 4			Week 5		
Sat.	Unsat.	Eng. Hrs.	Sat.	Unsat.	Eng. Hrs.	Sat.	Unsat.	Eng. Hrs.	Sat.	Unsat.	Eng. Hrs.	Sat.	Unsat.	Eng. Hrs.

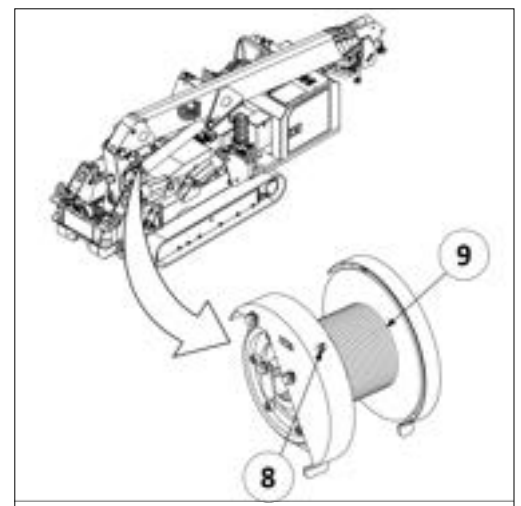
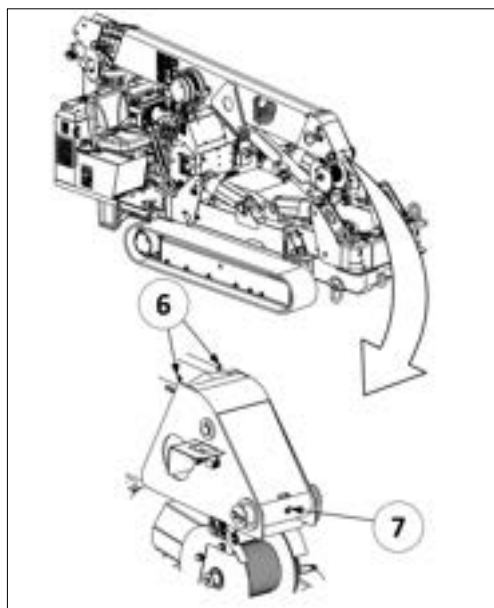
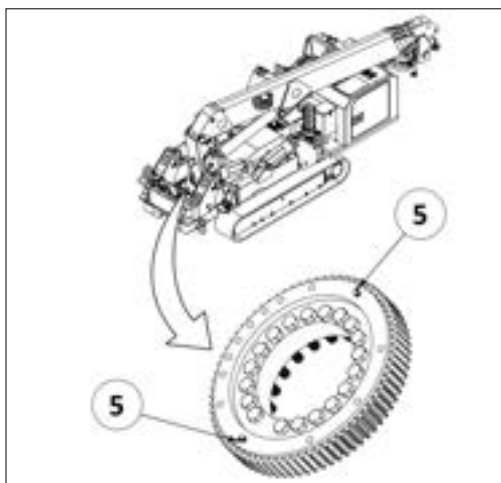
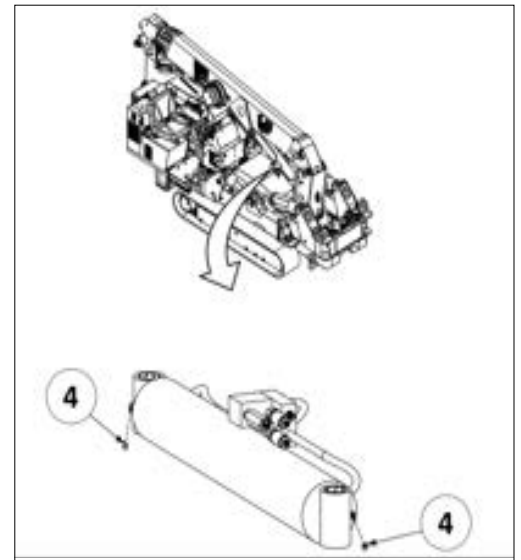
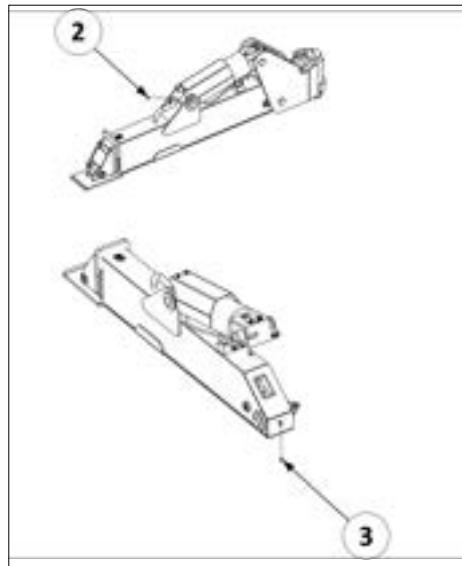
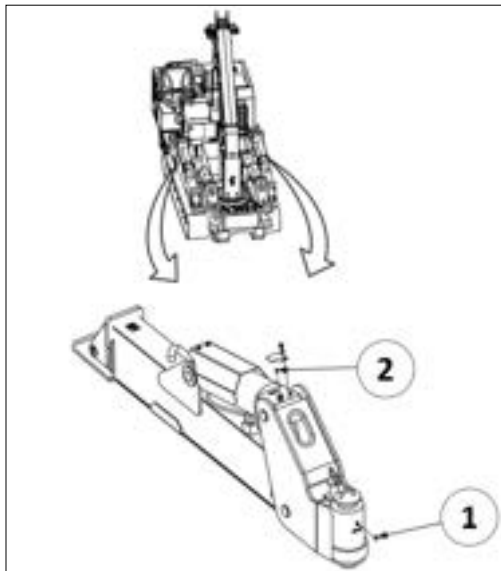
Service Schedule by MODEL

300– and 500-Series Diesel Engine (C4URS)			
Service	Product	Description	Interval
Check/Replace Hydraulic Oil	Shell Tellus 32 NSN:9150-01-336-6589	19.8 gallons for both the 300– and 500-series	3 months (first time) Every 1000 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 year.
Replace Line Filter	P/N: 7405800364Q9H5	Replace the in-line hydraulic oil filter.	After 1 year of operation After replacement of pump
Replace Oil Return Filter	P/N: PH3616	Replace spin-on hydraulic oil return filter located rearward of the left-side console.	Every 2 years.
Replace Engine Oil and Filter	P/N: 119305-351510AK42	Drain and replace engine and oil and replace filter.	After first 100 engine hours. Every 250 engine hours thereafter.
Replace Air Filter (Inner)	P/N: P53539618265	Inspect and clean the air filters whenever the air flow warning lights indicates blockage. Replace both filters at the same time.	Every year.
Replace Air Filter (Outer)	P/N: P82268618265	Replace both filters at the same time.	Every year.
Replace engine coolant	Antifreeze for heavy-duty engines NSN: 6850-01-441-3218	Check and top-off the Engine Coolant Overflow Tank. Drain and replace coolant from the radiator.	Every 2 years.

700-Series Diesel Engine (C4URS)			
Service	Product	Description	Interval
Check/Replace Hydraulic Oil	Shell Tellus 32 NSN:9150-01-336-6589	31.7 gallons for the 700-series	3 months (first time) Every 1000 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 year.
Replace Line Filter	P/N: 7405-80034	Replace the in-line hydraulic oil filter.	After 1 year of operation After replacement of pump
Replace Oil Return Filter	P/N: ZB49 03070	Replace spin-on hydraulic oil return filter located rearward of the left-side console.	Every 2 years.
Replace Engine Oil and Filter	P/N: ZB49 03070	Drain and replace engine and oil and replace filter.	After first 100 engine hours. Every 250 engine hours thereafter.
Replace Air Filter (Inner)	P/N: P53539618265	Inspect and clean the air filters whenever the air flow warning lights indicates blockage. Replace both filters at the same time.	Every year.
Replace Air Filter (Outer)	P/N: P82268618265	Replace both filters at the same time.	Every year.
Replace engine coolant	Antifreeze for heavy-duty engines NSN: 6850-01-441-3218	Check and top-off the Engine Coolant Overflow Tank. Drain and replace coolant from the radiator.	Every 2 years.

Lubrication Points of Your SPYDERCRANE

300-, 500-, 700-Series Lubrication (Annual)			
#	Component	Lubricant	Application
1	Outrigger Deployment Pivot	Molybdenum Grease (NLGI 1,2)	Manually apply to exposed boom
2	Outrigger Vertical Extension Cylinder (upper and lower)	Molybdenum Grease (NLGI 1,2)	Grease Gun
3	Outrigger Horizontal Extension Cylinder	Molybdenum Grease (NLGI 1,2)	Grease Gun
4	Lift Cylinder (upper and lower)	Molybdenum Grease (NLGI 1,2)	Grease Gun
5	Slew Gear (left and right)	Molybdenum Grease (NLGI 1,2)	Grease Gun
6	Boom Slide Plate (left and right)	Molybdenum Grease (NLGI 1,2)	Grease Gun
7	Boom Hinge Pin	Molybdenum Grease (NLGI 1,2)	Grease Gun
8	Wire rope	Wire Rope Lubricant	Aerosol Spray
9	Winch Gear	Molybdenum Grease (NLGI 1,2)	Grease Gun



Check/Add/Drain/Replace Hydraulic Oil (300-/500-Series/700-Series)

Vehicle Start Condition

- ♦ 300-/500-/700-Series
- ♦ Travel Mode
- ♦ Hook Block (any) Installed
- ♦ OFF

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ 1-30 minutes

Tools and Equipment Needed

- ♦ Hydraulic Oil (19.8 gal for 300-/500-Series, 31.7 gal for 700-Series)
- ♦ Drain Pan
- ♦ Tool Kit

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.

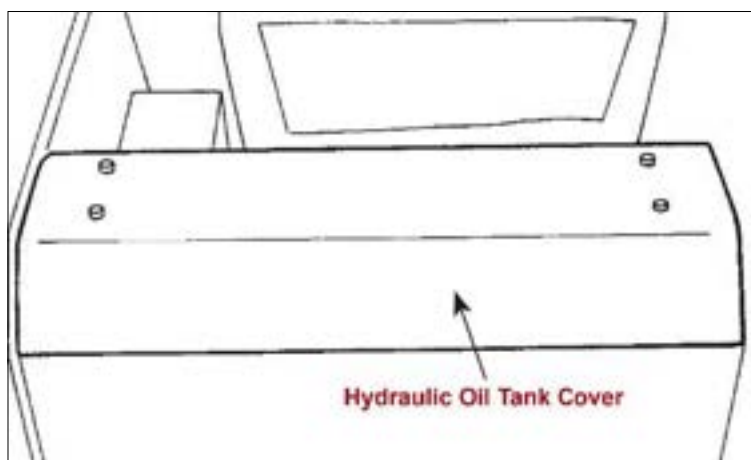
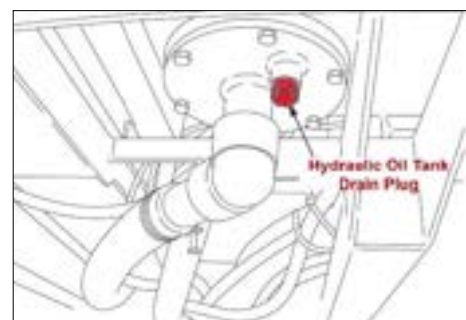
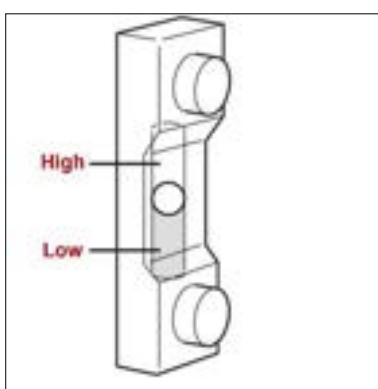
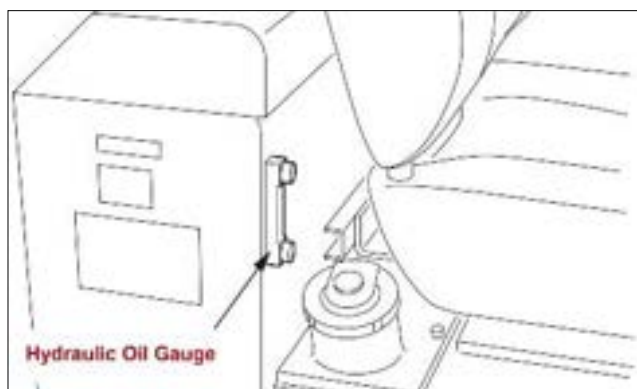
NOTE: When checking or filling the Hydraulic Oil Tank, the SPYDERCRANE MUST be in Travel Mode with the outriggers and boom in their stored conditions.

Check Oil Level

1. Check the Hydraulic Oil Sight Glass (Gauge), ensuring that the SPYDERCRANE is in travel mode and parked on level ground.

Add/Drain/Replace Oil

1. Remove the Hydraulic Oil Tank Cover.
2. SLOWLY loosen and remove the Hydraulic Oil Tank Cap.
3. If necessary, place drain pan underneath the Hydraulic Oil Tank Drain Plug.
4. Open the drain plug to drain out the Hydraulic Oil Tank.
5. Replace drain plug and fill tank.
6. Replace tank cap and cover.
7. Perform operational checkout and run SPYDERCRANE through outrigger deployment and crane functions to check for oil leaks and clear out air bubbles.



Replace the Hydraulic Line Filter (300-/500-Series/700-Series)

Vehicle Start Condition

- ♦ 300-/500-/700-Series
- ♦ Travel Mode
- ♦ Hook Block (any) Installed
- ♦ OFF

Personnel and Time Needed

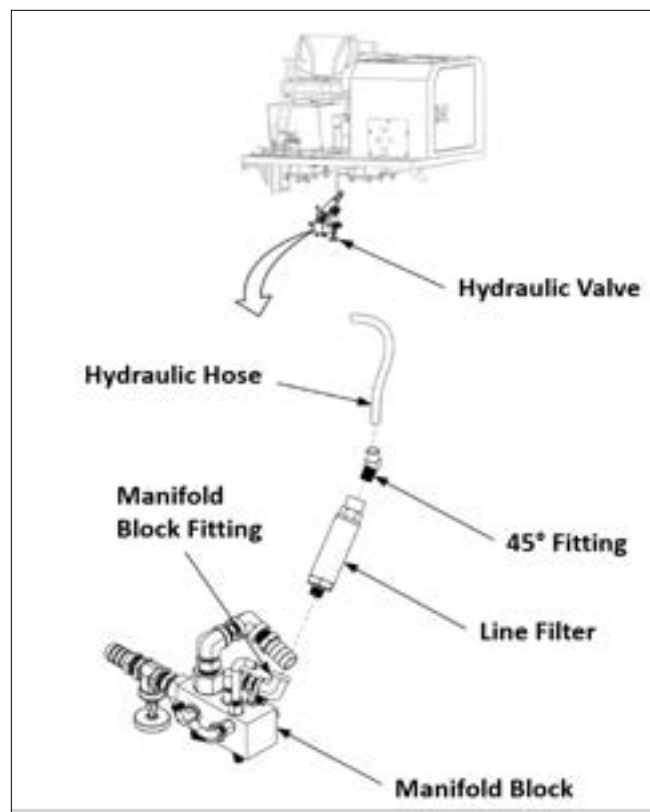
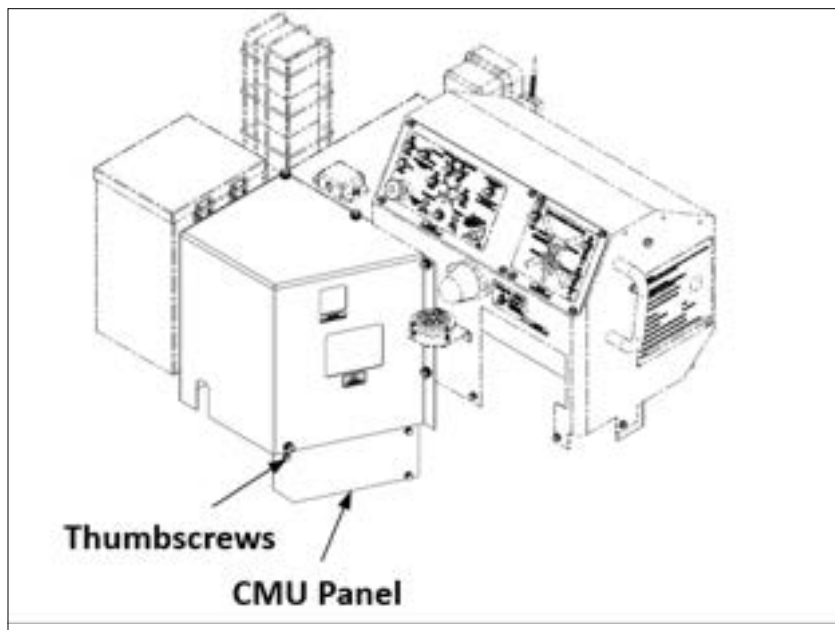
- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ New Hydraulic Line Filter
- ♦ PTFE Tape
- ♦ 13mm and 17mm wrench
- ♦ Drain Pan
- ♦ New Line Filter

WARNING: Leave SPYDERCRANE OFF and allow enough time for the all of the onboard fluids (including the coolant) to cool to ambient.

1. Deploy SPYDERCRANE (any Deployment State), and slew boom over curbside (to provide working space).
2. Power off SPYDERCRANE.
3. Cut cable tie securing Hydraulic Valve and close the valve.
4. Remove CMU Panel by removing three thumbscrews and washers
5. Position Drain Pan under Line Filter.
6. Disconnect the hydraulic hose from 45° Fitting and secure the hose with to the carrier frame to reduce oil spillage, using a cable tie.
7. Disconnect the hydraulic hose from Manifold Block.
8. Remove the 45° Fitting from the old Line Filter.
9. Install the new Line Filter:
 - a. Apply PTFE Tape to 45° Fitting and new Line Filter.
 - b. Attach the 45° Fitting to Line Filter.
 - c. Attach the Line Filter to the Manifold Block.
 - d. Remove the cable tie securing the hydraulic hose.
11. Replace the CMU Panel.
12. Open Hydraulic Valve and secure with cable tie.
13. Perform an operational checkout and run the SPYDERCRANE through its full range of functions to check for leaks.



Check/Add/Drain/Replace Coolant (300-/500-Series/700-Series)

Vehicle Start Condition

- ♦ 300-/500-/700-Series
- ♦ Travel Mode
- ♦ Hook Block (any) Installed
- ♦ OFF

Personnel and Time Needed

- ♦ 1 Person
- ♦ Standard PPE
- ♦ 1-30 minutes

Tools and Equipment Needed

- ♦ Coolant
- ♦ Drain Pan (if draining)
- ♦ Tool Kit

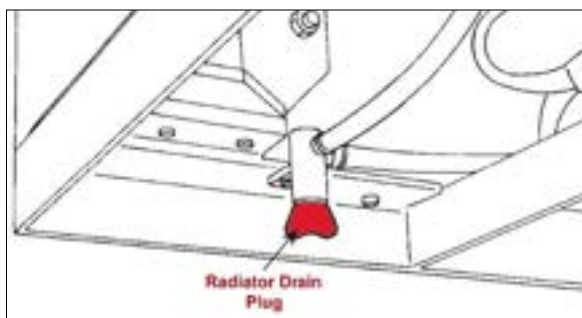
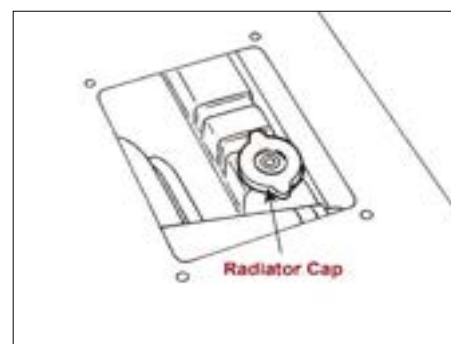
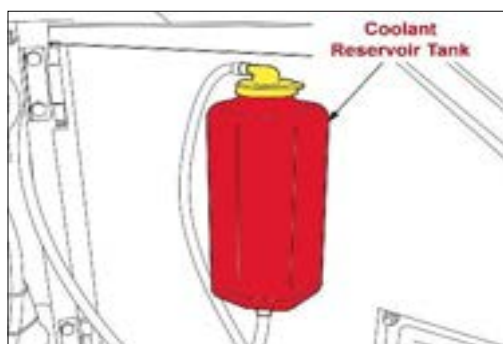
WARNING: Leave SPYDERCRANE OFF and allow enough time for the all of the onboard fluids (including the coolant) to cool to ambient.

Check/Add Coolant

1. Open the Engine Compartment and check coolant level.
2. To add coolant, remove lid on the top of the reservoir tank and add coolant to the "FILL" hash mark.
3. If the reservoir tank is completely empty, you'll need to fill the Radiator.

Drain/Replace Coolant

1. Remove the Radiator Access Cover, and/or the Top-Side Engine Cover.
2. Making sure that it is cool to the touch, remove the Radiator Cap.
3. Place drain pan underneath the Radiator Drain Plug, on the bottom of the carrier chassis.
4. Drain the radiator by removing the Radiator Drain Plug; allow all the coolant to drain before replacing the plug.
5. Add radiator detergent to the radiator and replace the Radiator Cap.
6. Start and run the SPYDERCRANE's engine at slightly more than idle to raise the coolant temperature to 176°F (80°C) for at least 30 minutes.
7. Shut down the SPYDERCRANE and wait for AT LEAST 10 minutes for the engine and coolant to cool down.
8. Drain the radiator, and then add distilled water.
9. Run the SPYDERCRANE for 10 minutes, let the engine cool down for 5 minutes, and then drain the radiator.
10. Repeat STEPS 7 through 10 until the drain water runs clear.
11. Add coolant to the radiator AND the Radiator Reservoir Tank, until both are full.



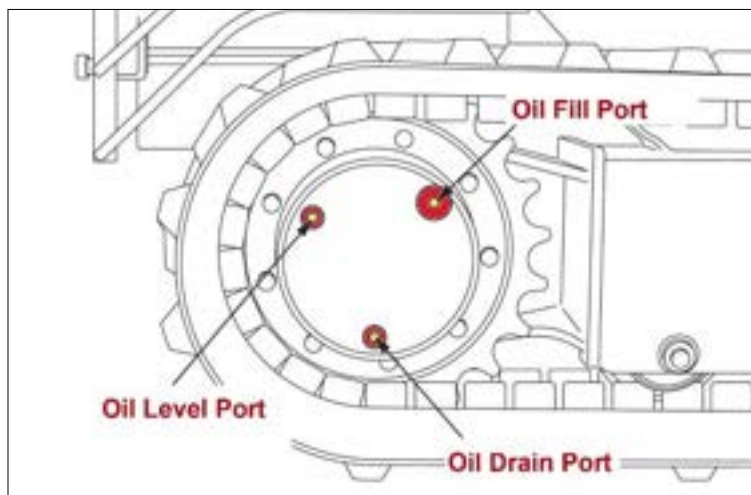
Replace Crawler Track Drive Wheel Oil (300-/500-Series/700-Series)

Vehicle Start Condition	Personnel and Time Needed	Tools and Equipment Needed
♦ 300-/500-/700-Series ♦ Deployed ♦ Hook and Boom STORED	♦ 1 Person ♦ Standard PPE ♦ <5 minutes	♦ Hydraulic Oil ♦ 8mm Allen Wrench ♦ PTFE Tape

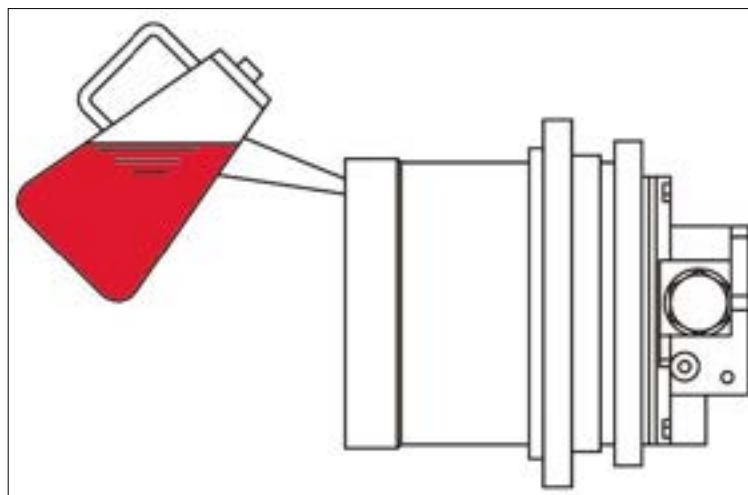
1. Place the SPYDERCRANE into Travel Mode (while it is still deployed on its outriggers) and turn the Drive Wheels until they are oriented so that the Drain Port is at the 6 o'clock position (Fig. 1).

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 Oil Level Port (8mm).
4. 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.
5. Add oil through the Fill Port until the Drive Wheel is filled (Fig. 2).
6. 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 (300-/500-Series/700-Series)

Vehicle Start Condition

- ♦ 300-/500-/700-Series
- ♦ Travel Mode
- ♦ OFF

Personnel and Time Needed

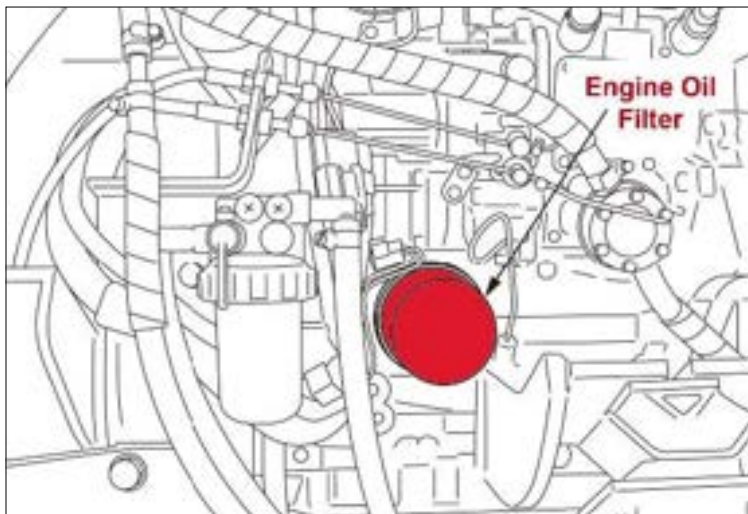
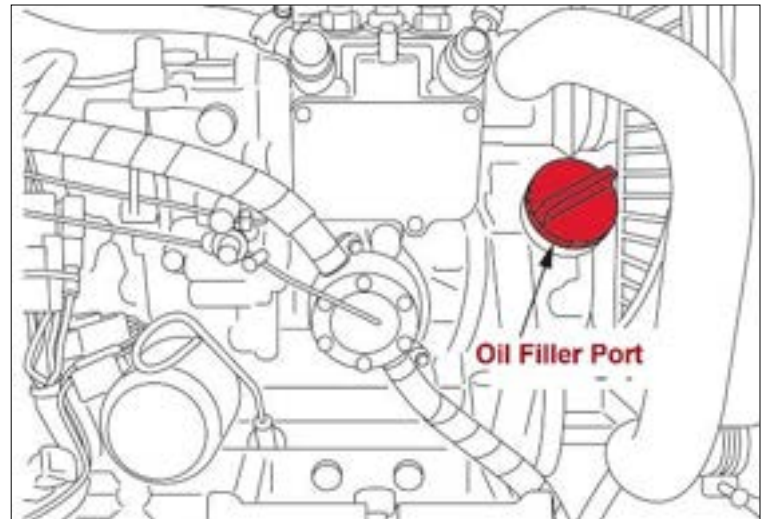
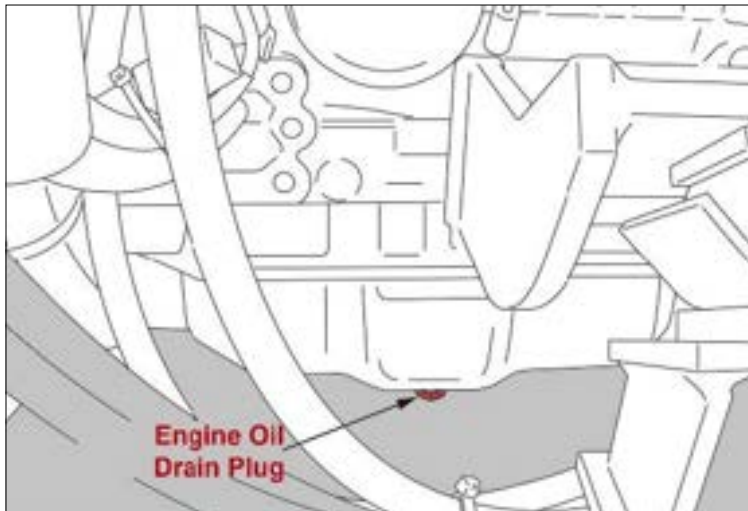
- ♦ 1 Person
- ♦ Standard PPE
- ♦ <15 minutes

Tools and Equipment Needed

- ♦ Motor Oil (1.2 gallons)
- ♦ Drain Pan
- ♦ New Engine 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.

1. Place a drain pan underneath the Drain Plug, remove the plug, and allow the oil to drain out of the engine.
2. Remove the Engine Oil Filter, confirm that the o-ring comes away with the filter.
3. Apply a thin layer of new engine oil on the o-ring of the of the replacement Engine Oil Filter and install the filter.
4. Replace the Drain Plug.
5. Open the Filling Port and add new engine oil.
6. Close the Filling Port, start up the diesel engine of the SPYDERCRANE, and allow the engine to run for a few minutes to circulate the oil throughout the engine and check for leaks.



Clean/Replace Air Filter (300-/500-Series)

Vehicle Start Condition

- ♦ 300-/500-Series
- ♦ Travel Mode
- ♦ OFF

Personnel and Time Needed

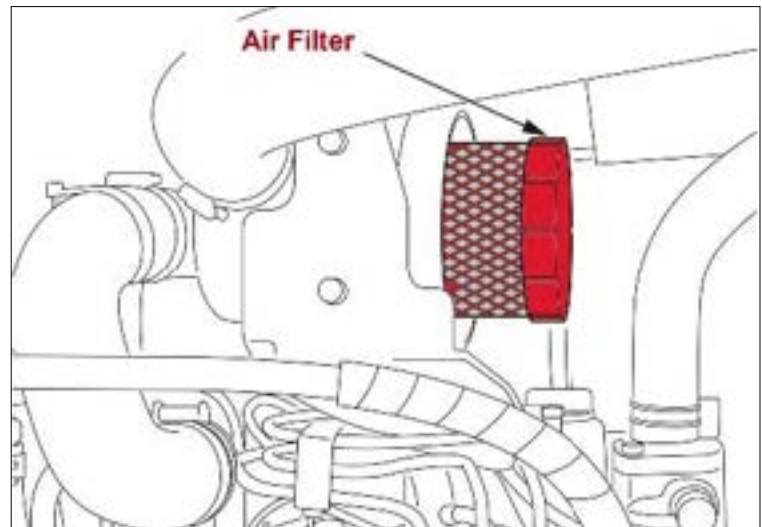
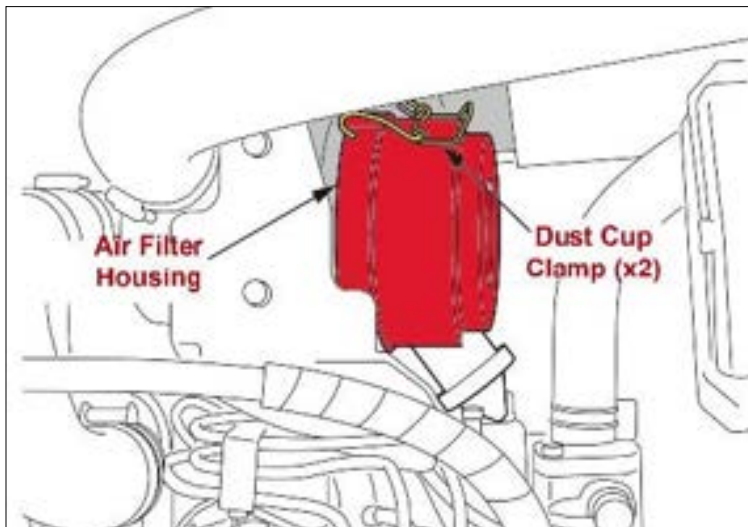
- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ Air Filter (Inner/Outer)

WARNING: You **MUST** leave the SPYDERCRANE OFF and allow enough time for the engine to cool before performing ANY maintenance.

1. Park the SPYDERCRANE on a level surface, turn off the engine, and wait AT LEAST 5 minutes for the engine to cool.
2. Open the Engine Compartment, remove the Dust Cover from the Air Filter Housing by releasing both Dust Cover Clamps.
3. Remove both Air Filters (Inner/Outer).
4. Clean the inside of the Air Filter Housing with a clean, dry, cloth.
5. Replace both Air Filters.
6. Replace Dust Cover.



Clean/Replace Air Filter (700-Series)

Vehicle Start Condition

- ♦ 700-Series
- ♦ Travel Mode
- ♦ OFF

Personnel and Time Needed

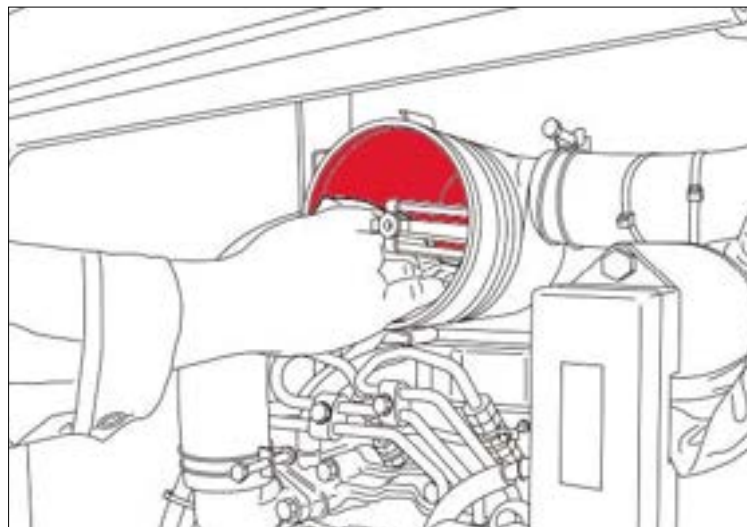
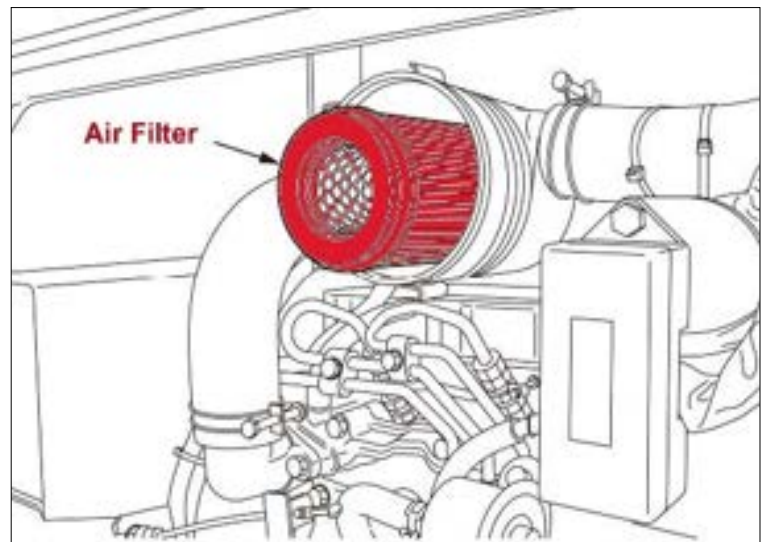
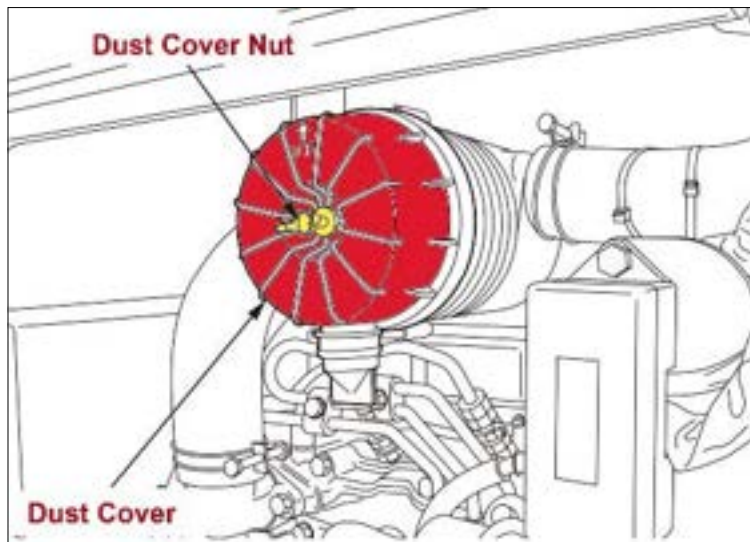
- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ Air Filter (Inner/Outer)

WARNING: You **MUST** leave the SPYDERCRANE OFF and allow enough time for the engine to cool before performing ANY maintenance.

1. Park the SPYDERCRANE on a level surface, turn off the engine, and wait AT LEAST 5 minutes for the engine to cool.
2. Open the Engine Compartment, remove the Dust Cover from the Air Filter Housing by releasing both Dust Cover Clamps.
3. Remove both Air Filters (Inner/Outer).
4. Clean the inside of the Air Filter Housing with a clean, dry, cloth.
5. Replace both Air Filters.
6. Replace Dust Cover.



Inspect, Clean, and Replace The Fuel Filter and Fuel/Water Separator (300-/500-/700-Series)

Vehicle Start Condition

- ♦ 300-/500-/700-Series
- ♦ Travel Mode
- ♦ OFF

Personnel and Time Needed

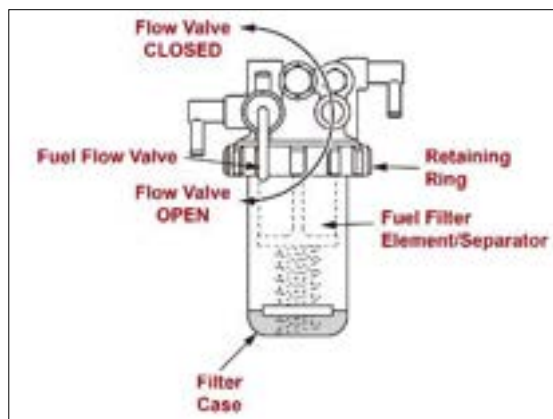
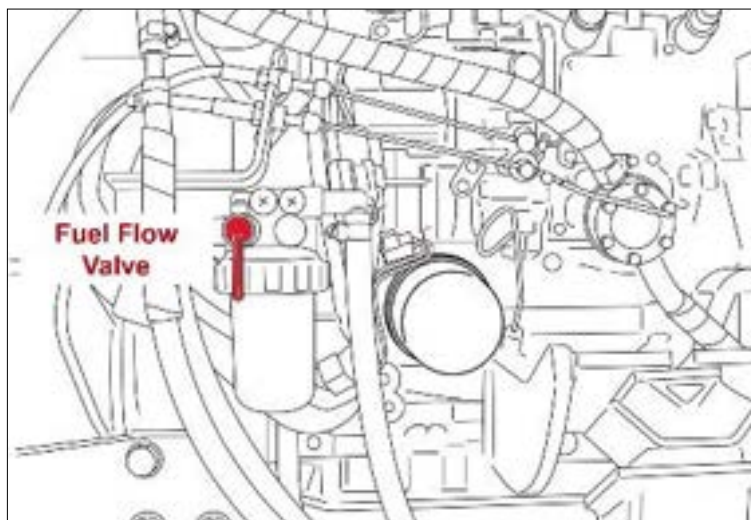
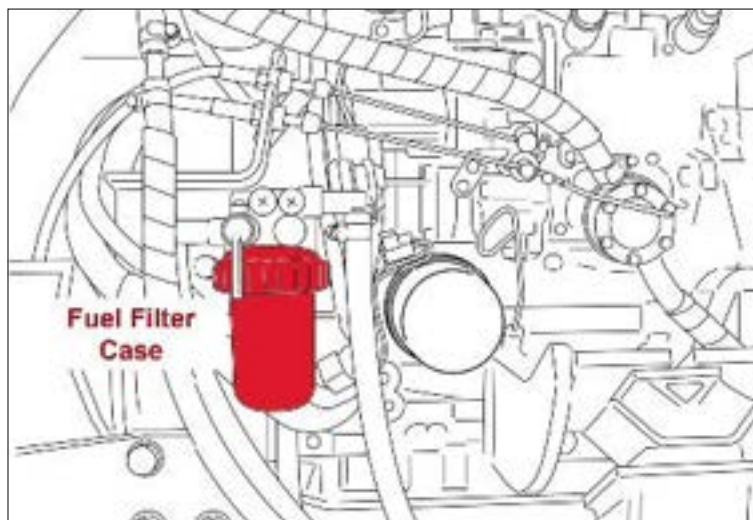
- ♦ 1 Person
- ♦ Standard PPE
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ Replacement Fuel Filter Element
- ♦ Replacement Fuel/Water Separator Screen (if replacing)

WARNING: You **MUST** leave the **SPYDERCRANE OFF** and allow enough time for the engine to cool before performing **ANY** maintenance.

1. Open the Engine Compartment.
2. Close the Fuel Flow Valve above the Fuel Filter Case.
3. Unfasten the Retaining Ring above the Fuel Filter Case to remove the case.
4. Remove and dispose of the Fuel Filter.
5. Wash out the inside of the Fuel Filter Case with diesel fuel.
6. Insert a new Fuel Filter into the Fuel Filter Case.
7. Inspect the O-Ring at the top of the Fuel Filter Case for excessive wear, or damage.
8. Fasten the Fuel Filter Case back to the Fuel Filter Port and hand-tighten the retaining ring.
9. Open the Fuel Flow Valve above the Fuel Filter Case.
10. Repeat Steps 1-10 for the Fuel/Water Separator, which is located below the Fuel Filter Case and uses the same case design.
11. Pump the Manual Fuel Priming Pump 20 times to pump in fuel and pump out any air trapped in the fuel line.



Hook and Boom Deployment Procedure (300-/500-/700-Series)

Vehicle Start Condition

- ◆ 300-/500-/700-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. Allow LMI to start-up, configure LMI for crane operations, and ensure LMI is running the Operations Screen.
2. Ensure Hook Block is NOT tied off, or otherwise secured (other than it being in the stored condition).
2. WINCH DOWN until the hook block is hanging freely and A2B Switch is pulled closed.
3. BOOM UP until Boom Stored Switch is disengaged.
4. Confirm CMU reads CODE 01 (CODE 00, if controlling remotely).
5. Confirm LMI Operations Screen is registering normal operations.

Hook and Boom Storage Procedure (300-/500-Series)

Vehicle Start Condition

- ◆ 300-/500-Series
- ◆ Deployed (any state)
- ◆ Hook Block (any) Installed
- ◆ ON

Personnel and Time Needed

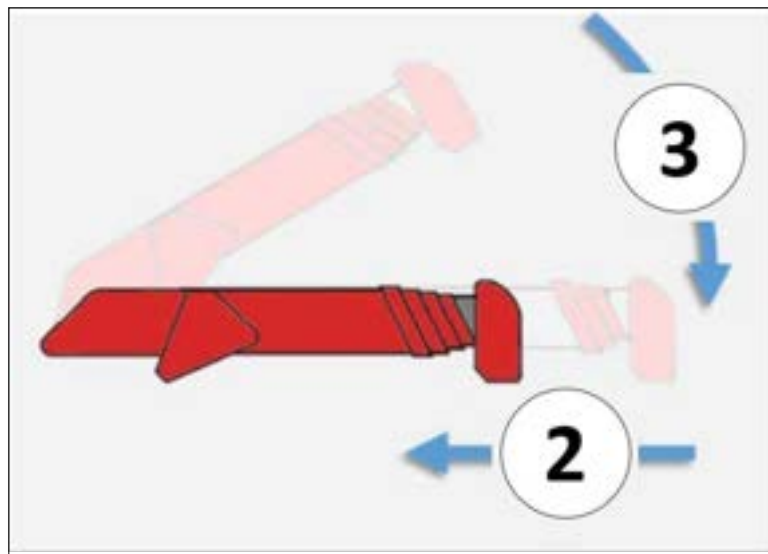
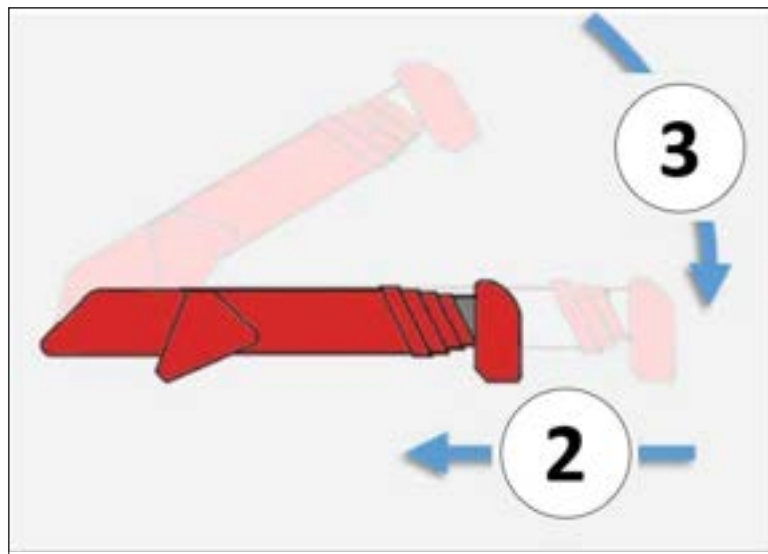
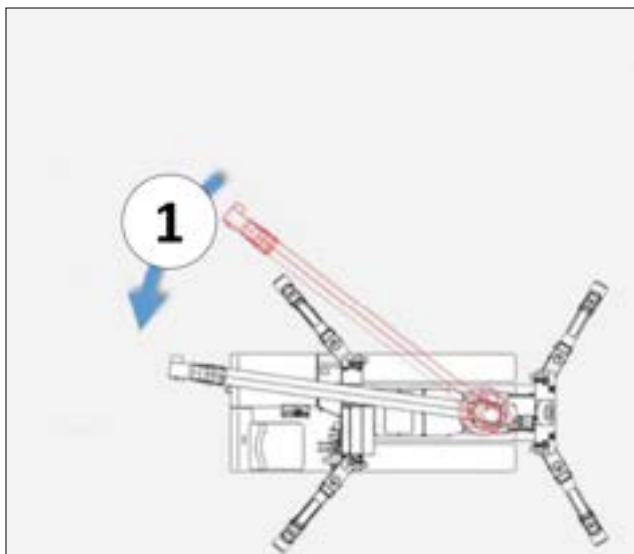
- ◆ 1 Person
- ◆ Standard PPE
- ◆ <5 minutes

Tools and Equipment Needed

- ◆ None

1. SLEW the boom until it is centered over the Safety Beacon.
2. BOOM IN until boom is fully retracted.
3. BOOM DOWN until boom is fully lowered (WINCH UP to prevent hook block from hitting the ground).
4. WINCH UP until hook block is raised as high as possible WITHOUT engaging the A2B Safety.
5. SLEW COUNTERCLOCKWISE to trigger Boom Stored Safety.
6. Command HOOK STORE until hook block is fully locked against 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.



Hook and Boom Storage Procedure (700-Series)

Vehicle Start Condition

- ♦ 700-Series
- ♦ Deployed (any state)
- ♦ Hook Block (any) Installed
- ♦ ON

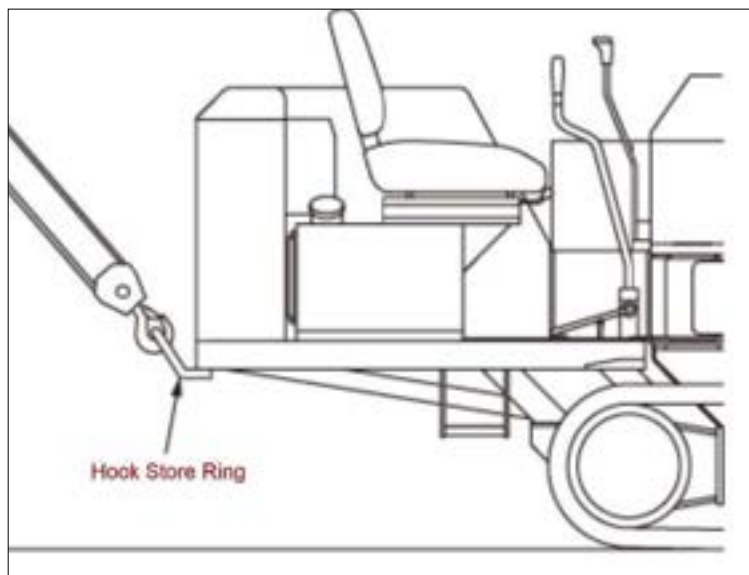
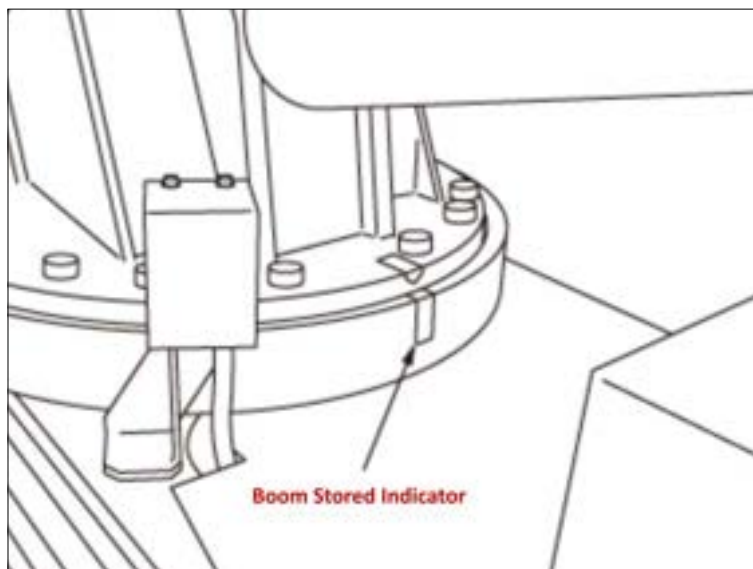
Personnel and Time Needed

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

Tools and Equipment Needed

- ♦ None

1. Fully retract the boom and BOOM DOWN to roughly 30°.
2. Rotate the boom until the Boom Stored Indicator on the Turntable lines up with the Boom Stored Indicator on the Slew Gear.
 - a. You will not be able to see the indicators from the Operator's Station; you will need to either switch to remote control, or use a spotter to guide you.
3. Once the Boom Stored Indicators are lined up, you can command a HOOK STORE, using the Hook Store Switch. When you press and hold the Hook Store Switch:
 - a. The CMU will command a BOOM DOWN and WINCH UP at 50% speed.
 - b. The Anti-Two Block (A2B) System will be disengaged.
 - c. A 350 PSI pressure release valve will be activated.
 - d. The boom will lower into its stored condition while the hook rises into its stored condition.
4. If you are using a 1-Part Hook with the URW706, you will need to attach the hook to its Hook Store Ring BEFORE commanding a HOOK STORE:
 - a. The hook block will lock up against the Hook Store Ring during the HOOK STORE.



Hook Block Grounding Procedure (300-/500-/700-Series)

Vehicle Start Condition

- ♦ 300-/500-/700-Series
- ♦ Deployed (any state)
- ♦ Hook Block (any) Installed
- ♦ ON

Personnel and Time Needed

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

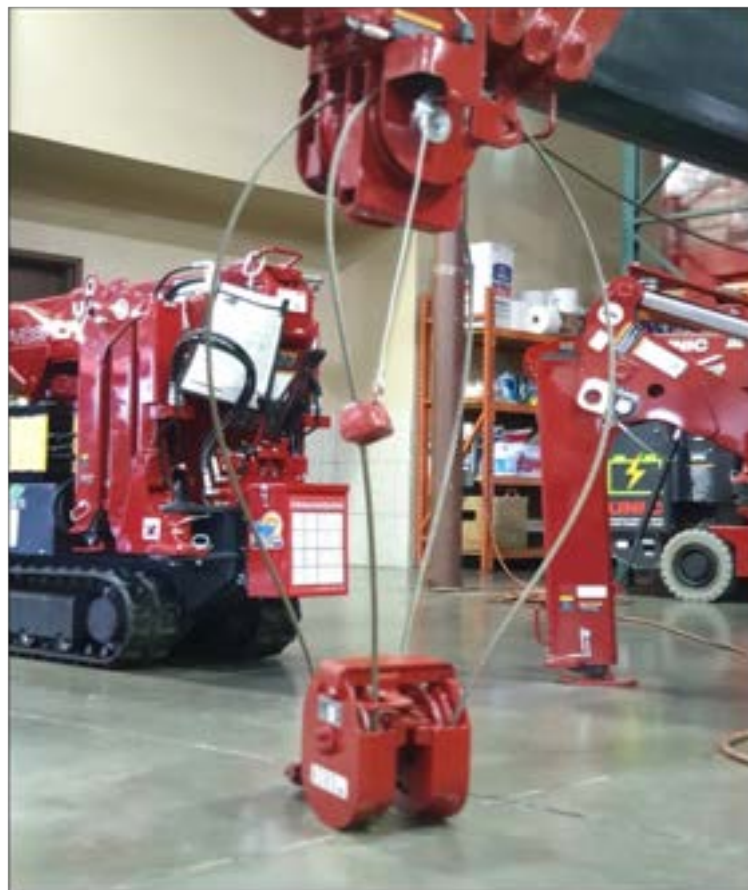
Tools and Equipment Needed

- ♦ 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 (300-/500-/700-Series)

Vehicle Start Condition

- ♦ 300-/500-/700-Series
- ♦ Deployed (any state)
- ♦ Hook Block Installed but Grounded
- ♦ ON

Personnel and Time Needed

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

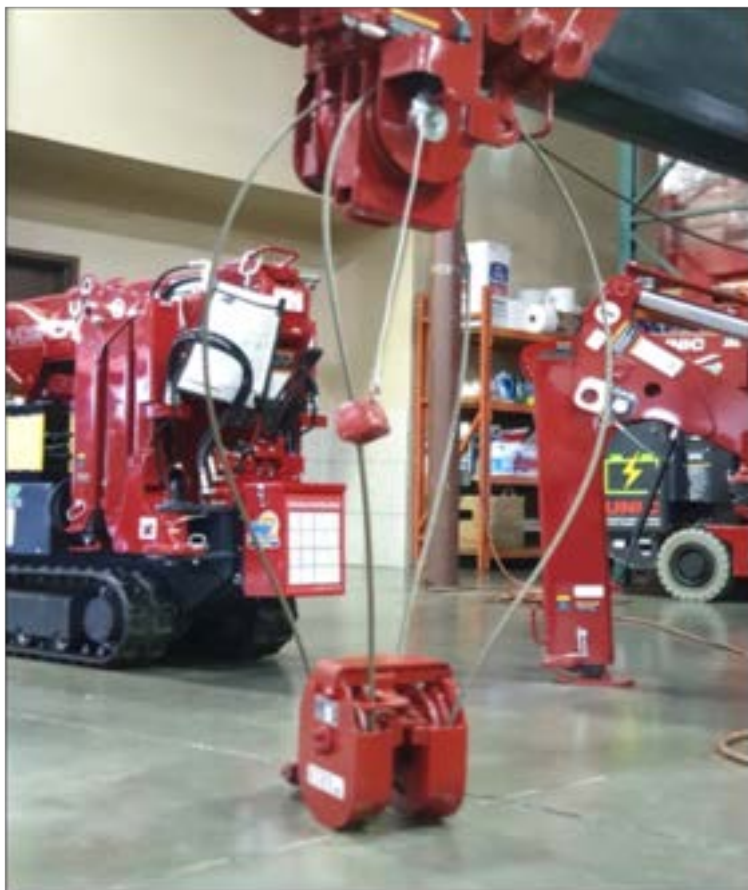
Tools and Equipment Needed

- ♦ 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) (300-/500-Series)

Vehicle Start Condition

- ♦ 300-/500-Series
- ♦ Deployed (any state)
- ♦ Boom Deployed, No Hook Block Installed
- ♦ OFF

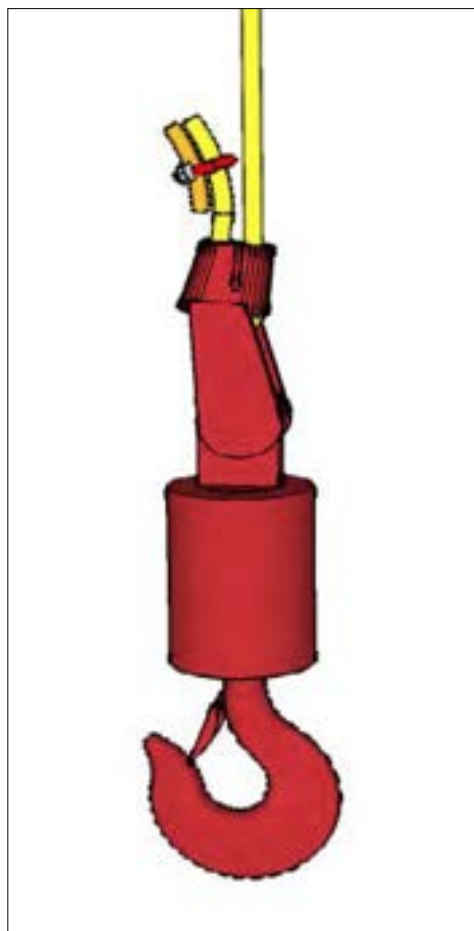
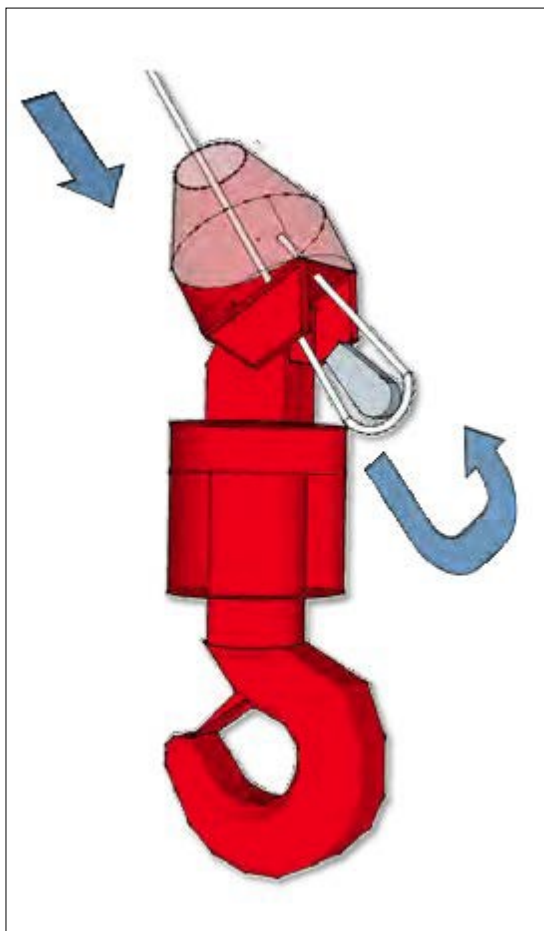
Personnel and Time Needed

- ♦ 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.
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.
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.
9. Tighten the 13mm nuts of the Wire Rope Clip to complete the installation.



Install the 4-Part Hook Block (300-/500-Series)

Vehicle Start Condition

- ♦ 300-/500-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.

Store 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

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 WINCHING UP to pull the shrink wrap onto the drum to secure the wire rope.



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

Un-Install the Wire Rope (300-/500-Series)

Vehicle Start Condition

- ♦ 300-/500-Series
- ♦ Deployed (any state)
- ♦ Boom Deployed, NO Hook Block
- ♦ ON, Remote Control

Personnel and Time Needed

- ♦ 3 Persons
- ♦ Standard PPE
- ♦ Heavyweight , rope-handling gloves
- ♦ <5 minutes

Tools and Equipment Needed

- ♦ .25 in punch and hammer (optional)

NOTE: Depending on your specific SPYDERCRANE model, you may need two operators to command the Winch controls of the SPYDER-CRANE.

1. Using the Remote Controller SLOWLY command a WINCH DOWN while pulling on rope to maintain tension; continue to WINCH DOWN until the Minimum Wire Rope Safety disables the command.
2. While one person watches the winch and maintains pressure on the wire rope, the other two operators must command a WINCH DOWN while holding down both the Minimum Wire Rope Override AND the Safety Bypass (on newer SPYDERCRANES, the Minimum Wire Rope Override's function has been combined with the Safety Bypass).
3. Continue to WINCH DOWN SLOWLY until the narrow end of the Wire Rope Wedge in the Wire Rope Drum is accessible (Fig. 1).
4. Use the small punch to tap the Wire Rope Wedge out of position and release the end of the wire rope (Fig. 2).



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



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

Install the Wire Rope (Primary Winch)

Vehicle Start Condition

- ♦ 300-/500-Series
- ♦ Deployed (any state)
- ♦ Boom Deployed, NO Hook Block
- ♦ ON, Remote Control

Personnel and Time Needed

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

Tools and Equipment Needed

- ♦ None

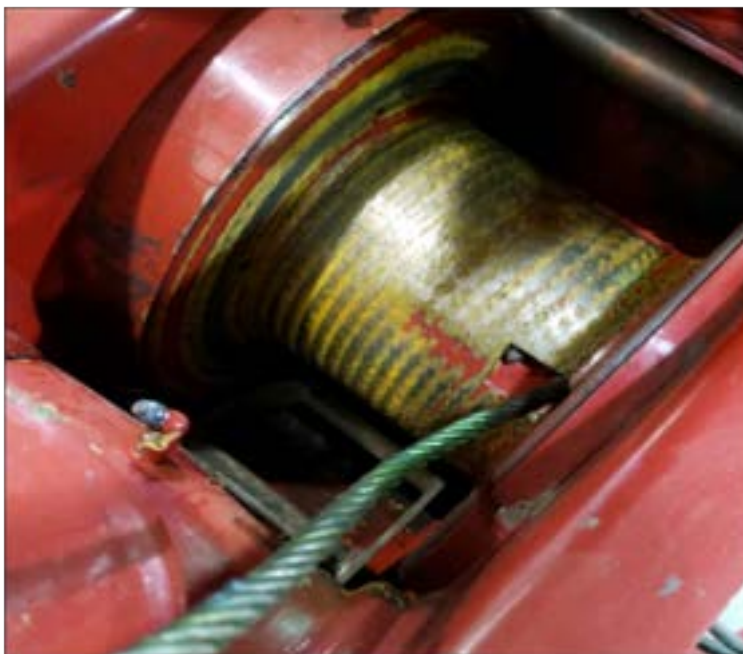
NOTE: Depending on your specific SPYDERCRANE model, you may need two operators to command the Winch controls of the SPYDER-CRANE.

1. Reeve the wire rope through the Boom Tip, through the boom guides, to the Wire Rope Drum.
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. 1).

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

5. One person must maintain tension on the wire rope while WINCHING UP; the other two operators must command a WINCH UP while holding down both the Minimum Wire Rope Override AND the Safety Bypass (on newer SPYDERCRANES, the Minimum Wire Rope Override's function has been combined with the Safety Bypass).
6. WINCH UP the wire rope, while maintaining tension and adjusting the wraps.
7. 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. 1): 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 (URW376)

Vehicle Start Condition

- ♦ URW376
- ♦ Deployed (any state)
- ♦ Boom Deployed, NO Hook Block Installed
- ♦ NO Boom Tip Accessories Installed
- ♦ OFF (see note)

Personnel and Time Needed

- ♦ 2 Persons
- ♦ Standard PPE
- ♦ <10 minutes

Tools and Equipment Needed

- ♦ None

Dismount the Jib System

1. Dismount the stored Jib by removing the two Jib Pins and then pulling the entire Jib back (towards the rear of the boom) and up to remove the Jib from its storage cradle (1)(2).
2. Remove both Jib Arm Support Pins (4)(5).
3. Lift the Jib Support Arm out of storage cradle (6).

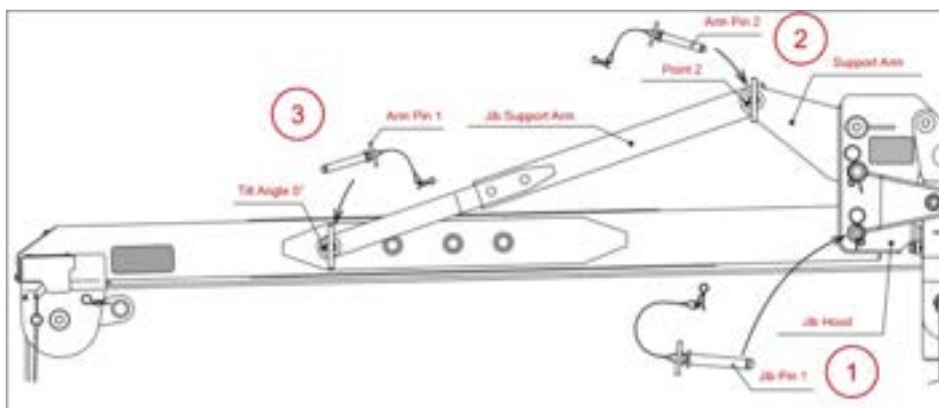
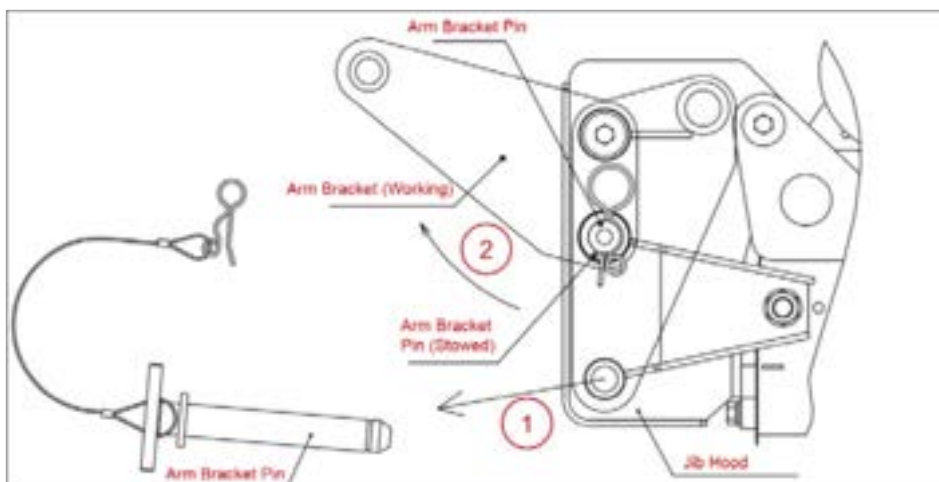
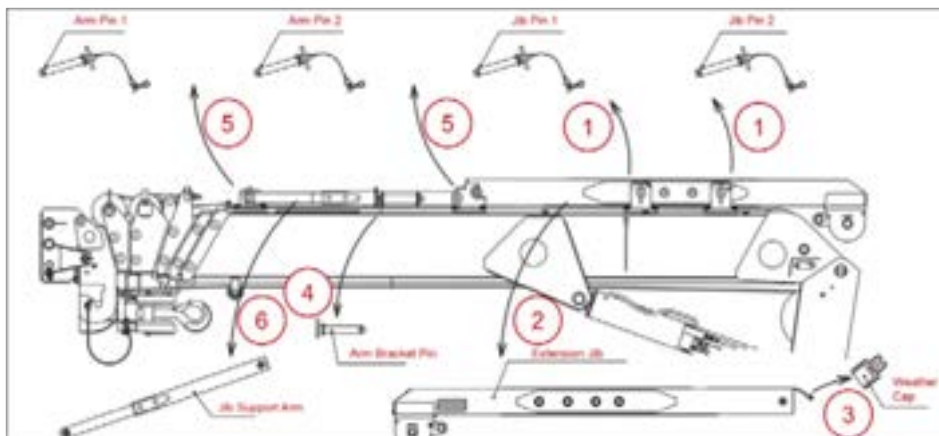
Ready the Jib Bracket

1. Pull the Arm Bracket Pin from the Jib Hood of the boom (1).
2. Rotate the Jib Support Arm Bracket from its stored condition into its deployed condition and insert and safety-clip the Arm Bracket Pin to secure the bracket (2).

Install the Jib

1. Insert the end of the Jib into the Jib Hood of the boom; line up the hole in the end of the Jib with the bottom hole in the Jib Hood and insert and safety-clip one of the Jib Pins (1).
2. Attach the Jib Support Arm to the Jib Support Bracket, using one of the Jib Arm Support Pins (2).
3. Attach the other end of the Jib Support Arm to the Jib and secure using the other Jib Arm Support Pin (3).

NOTE: The Jib can be set to one of four tilt angles, depending on which hole you use to attach the Jib Support Arm to the Jib (the forward-most hole for tilt angle 0°, the next three increase the tilt angle in 20° increments).



Install the Searcher Hook (Jib) (URW376)

Vehicle Start Condition

- ◆ URW376
- ◆ Deployed (any state)
- ◆ Boom Deployed, Jib Installed
- ◆ OFF (see note)

Personnel and Time Needed

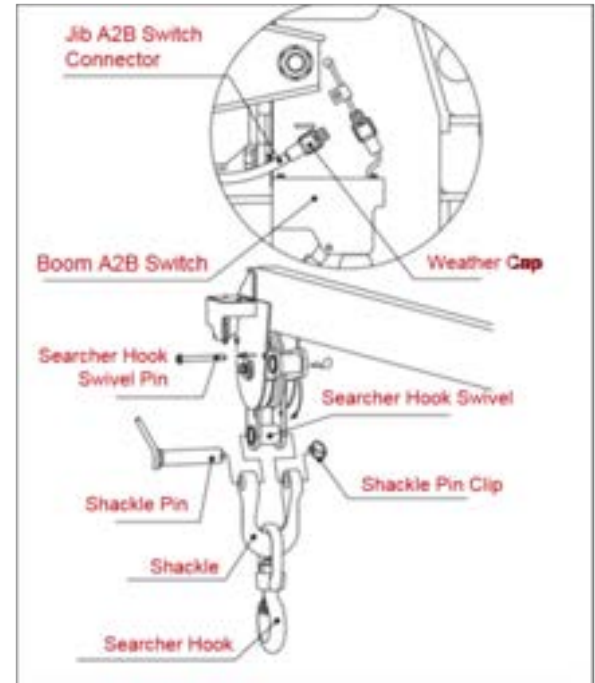
- ◆ 2 Persons
- ◆ Standard PPE
- ◆ <10 minutes

Tools and Equipment Needed

- ◆ None

NOTE: If you are using the Searcher Hook with the Jib, make sure to store and secure the wire rope to the Wire Rope Drum.

1. Pull the Searcher Hook Swivel Pin to release the Searcher Hook Swivel.
2. Attach the Searcher Hook to the Searcher Hook Shackle and attach the Shackle to the Searcher Hook Swivel.



Install the 1-Part Hook (Jib) (URW376)

Vehicle Start Condition

- ◆ URW376
- ◆ Deployed (any state)
- ◆ Boom Deployed, Jib Installed
- ◆ OFF (see note)

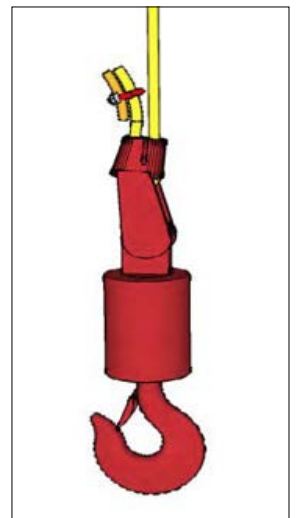
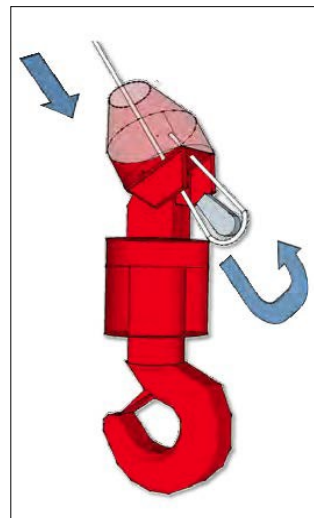
Personnel and Time Needed

- ◆ 2 Persons
- ◆ Standard PPE
- ◆ <10 minutes

Tools and Equipment Needed

- ◆ None

1. Push the dead-end of the wire rope through the top of the becket of the 1-Part Hook, following the arrow embossed on the becket.
2. Loop the dead-end and push it back up through the bottom of the becket.
3. Insert the Wire Rope Socket Wedge before closing the loop; make sure that AT LEAST 6.5 inches of the "tail" is above the becket.
4. Secure the dead-end of the wire rope using the Wire Rope Clip and an 8mm spacer, place the saddle of the clip on the spacer and the U-bolt of the clip on the dead-end.
5. Tighten the nuts of the Wire Rope Clip to secure the dead end.
6. Attach the Jib A2B Switch Connector to the SPYDERCRANE's A2B System (you will need to disconnect the Boom Tip A2B Switch).



Install the Jib (URW706)

Vehicle Start Condition

- ◆ URW706
- ◆ Deployed (any state)
- ◆ Boom Deployed, NO Hook Block Installed
- ◆ OFF

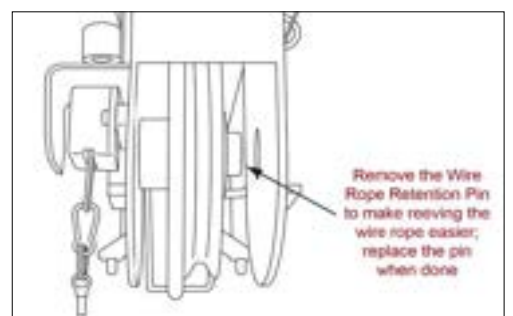
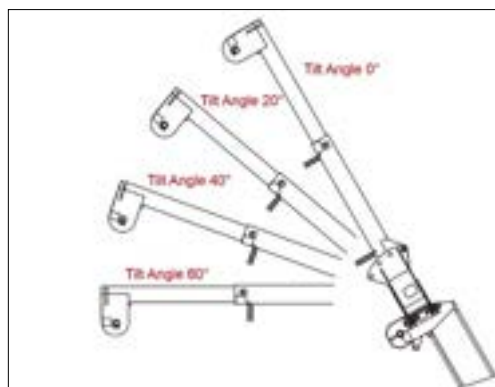
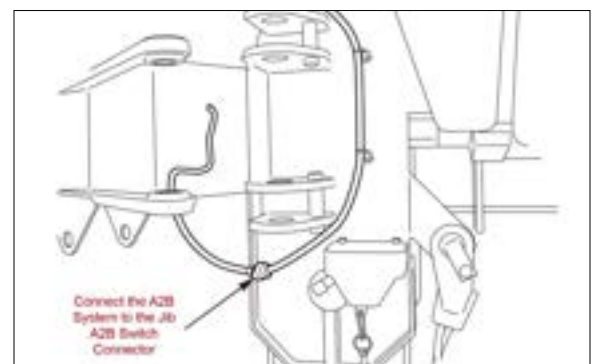
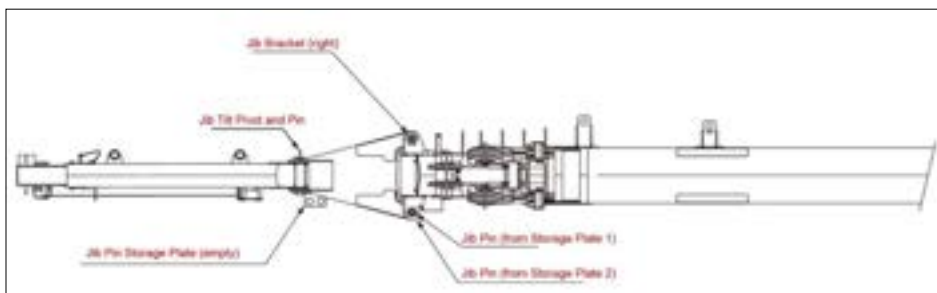
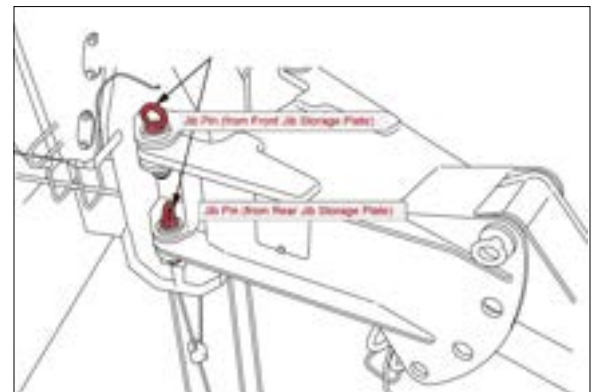
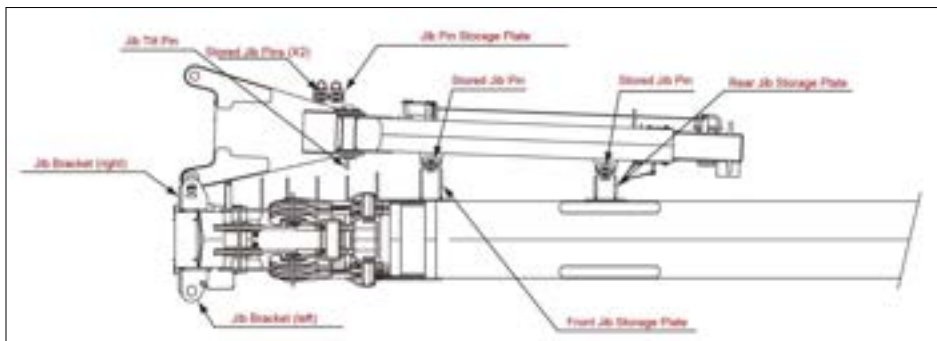
Personnel and Time Needed

- ◆ 2 Persons
- ◆ Standard PPE
- ◆ <10 minutes

Tools and Equipment Needed

- ◆ None

1. Remove the Jib Pin in the Rear Jib Storage Plate.
2. Rotate the Jib on the Front Jib Storage Plate (leaving the Jib Pin in, to act as an axle) so that the installation holes in the rear of the Jib line up with the holes in the right side of the Jib Bracket.
3. Insert the Jib Pin from the Rear Jib Storage Plate into the BOTTOM hole of the Jib Bracket.
4. Insert the Jib Pin from the Front Jib Storage Plate into the TOP hole of the Jib Bracket.
5. Rotate the unstowed Jib on the right-side Jib Bracket to line up the holes on the left-side Jib Bracket.
6. Secure the Jib using the Jib Pins from the Jib Pin Storage Plate; pinning the bottom hole first.
7. Unplug the A2B System from the Boom Tip A2B Switch and connect it to the Jib A2B Switch Connector, use the Weather Cap from the Jib A2B Switch Connector to cover the exposed Boom A2B Switch Connector.
8. Pull the end of the wire rope over the Jib Tip Sheave, remove the Wire Rope Retention Pin to make room for the wire rope and then install the pin once the wire rope is reeved over the sheave.
9. While supporting the weight of the Jib, pull the Jib Tilt Pin, rotate the Jib to the desired tilt angle (0°, 20°, 40°, or 60°), and then insert the pin to lock the Jib.



Load Charts: URW306-T and URW306

URW306-T/URW306 (4-Part Hook)

Stage 1+2

W/R	6	8	10	11	13	15	17	18.6			
MAX-EXT	5800	5800	5150	4570	3760	3180	2780	2420			
HALF-EXT	5800	5800	5100	4520	3600	2750	2100	1760			
NOT-EXT	5800	5800	4730	3700	2550	2000	1500	1100			

Stage 3

W/R	8.5	10	11	13	15	16	18	20	23	25.8	
MAX-EXT	5000	4500	3900	3150	2710	2500	2160	1870	1580	1360	
HALF-EXT	5000	4500	3900	3150	2570	2350	1870	1410	1050	880	
NOT-EXT	5000	4500	3750	2770	2250	2000	1500	1130	720	480	

Stage 4

W/R	13	15	16	20	23	26	30	33			
MAX-EXT	2330	2080	1960	1650	1430	1220	1080	900			
HALF-EXT	2330	2060	1940	1500	1170	910	650	500			
NOT-EXT	2330	1810	1540	1050	740	560	330	260			

Stage 5

W/R	15	16	20	23	26	30	33	36	40.2		
MAX-EXT	1670	1480	1100	920	820	710	650	590	570		
HALF-EXT	1670	1480	1070	920	780	650	550	440	350		
NOT-EXT	1670	1480	910	610	470	340	260	200	80		

Stage 6

W/R	16	18	20	23	26	30	33	36	39	43	47.3
MAX-EXT	720	660	610	550	510	450	410	370	350	300	280
HALF-EXT	720	660	610	550	510	450	410	330	270	190	150
NOT-EXT	720	660	610	550	450	290	240	170	130	110	80

- ◆ 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
 - ◆ Working Radius (W/R)

Load Charts: URW306-T and URW306

URW306-T/URW306 (1-Part Hook)

Stage 1+2

W/R	6	8	10	11	13	15	17	18.6			
MAX-EXT	1630	1630	1630	1630	1630	1630	1630	1630			
HALF-EXT	1630	1630	1630	1630	1630	1630	1630	1630			
NOT-EXT	1630	1630	1630	1630	1630	1630	1500	1100			

Stage 3

W/R	8.5	10	11	13	15	16	18	20	23	25.8	
MAX-EXT	1630	1630	1630	1630	1630	1630	1630	1630	1580	1360	
HALF-EXT	1630	1630	1630	1630	1630	1630	1630	1410	1050	880	
NOT-EXT	1630	1630	1630	1630	1630	1630	1500	1130	720	480	

Stage 4

W/R	13	15	16	20	23	26	30	33			
MAX-EXT	1630	1630	1630	1630	1430	1220	1080	900			
HALF-EXT	1630	1630	1630	1500	1170	910	650	500			
NOT-EXT	1630	1630	1540	1050	740	560	330	260			

Stage 5

W/R	15	16	20	23	26	30	33	36	40.2		
MAX-EXT	1630	1480	1100	920	820	710	650	590	570		
HALF-EXT	1630	1480	1070	920	780	650	550	440	350		
NOT-EXT	1630	1480	910	610	470	340	260	200	80		

Stage 6

W/R	16	18	20	23	26	30	33	36	39	43	47.3
MAX-EXT	720	660	610	550	510	450	410	370	350	300	280
HALF-EXT	720	660	610	550	510	450	410	330	270	190	150
NOT-EXT	720	660	610	550	450	290	240	170	130	110	80

- ◆ 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
 - ◆ Working Radius (W/R)

Load Charts: URW376-T and URW376

URW376-T/URW376 (4-Part Hook)											
Stage 1+2											
W/R	6	8	10	11	13	15	17	18.6			
MAX-EXT	6680	6680	5150	4570	3760	3180	2780	2420			
HALF-EXT	6680	6680	5100	4520	3600	2750	2100	1760			
NOT-EXT	6680	6680	4730	3700	2550	2000	1500	1100			
Stage 3											
W/R	8.5	10	11	13	15	16	18	20	23	25.8	
MAX-EXT	5000	4500	3900	3150	2710	2500	2160	1870	1580	1360	
HALF-EXT	5000	4500	3900	3150	2570	2350	1870	1410	1050	880	
NOT-EXT	5000	4500	3750	2770	2250	2000	1500	1130	720	480	
Stage 4											
W/R	13	15	16	20	23	26	30	33			
MAX-EXT	2330	2080	1960	1650	1430	1220	1080	900			
HALF-EXT	2330	2060	1940	1500	1170	910	650	500			
NOT-EXT	2330	1810	1540	1050	740	560	330	260			
Stage 5											
W/R	15	16	20	23	26	30	33	36	40.2		
MAX-EXT	1670	1480	1100	920	820	710	650	590	570		
HALF-EXT	1670	1480	1070	920	780	650	550	440	350		
NOT-EXT	1670	1480	910	610	470	340	260	200	80		
Stage 6											
W/R	16	18	20	23	26	30	33	36	39	43	47.3
MAX-EXT	720	660	610	550	510	450	410	370	350	300	280
HALF-EXT	720	660	610	550	510	450	410	330	270	190	150
NOT-EXT	720	660	610	550	450	290	240	170	130	110	80
◆ 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 ◆ Working Radius (W/R)											

Load Charts: URW376-T and URW376

URW376-T/URW376 (1-Part Hook)											
Stage 1+2											
W/R	6	8	10	11	13	15	17	18.6			
MAX-EXT	1630	1630	1630	1630	1630	1630	1630	1630			
HALF-EXT	1630	1630	1630	1630	1630	1630	1630	1630			
NOT-EXT	1630	1630	1630	1630	1630	1630	1500	1100			
Stage 3											
W/R	8.5	10	11	13	15	16	18	20	23	25.8	
MAX-EXT	1630	1630	1630	1630	1630	1630	1630	1630	1580	1360	
HALF-EXT	1630	1630	1630	1630	1630	1630	1630	1410	1050	880	
NOT-EXT	1630	1630	1630	1630	1630	1630	1500	1130	720	480	
Stage 4											
W/R	13	15	16	20	23	26	30	33			
MAX-EXT	1630	1630	1630	1630	1430	1220	1080	900			
HALF-EXT	1630	1630	1630	1500	1170	910	650	500			
NOT-EXT	1630	1630	1540	1050	740	560	330	260			
Stage 5											
W/R	15	16	20	23	26	30	33	36	40.2		
MAX-EXT	1630	1480	1100	920	820	710	650	590	570		
HALF-EXT	1630	1480	1070	920	780	650	550	440	350		
NOT-EXT	1630	1480	910	610	470	340	260	200	80		
Stage 6											
W/R	16	18	20	23	26	30	33	36	39	43	47.3
MAX-EXT	720	660	610	550	510	450	410	370	350	300	280
HALF-EXT	720	660	610	550	510	450	410	330	270	190	150
NOT-EXT	720	660	610	550	450	290	240	170	130	110	80
◆ 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 ◆ Working Radius (W/R)											

Load Charts: URW506

URW506 (4-Part Hook)											
Stage 1+2+3											
W/R	10	12.1	13	14	16	17	21	24	28		
MAX-EXT	5800	5800	5410	5000	4280	3820	3220	2790	2270		
HALF-EXT	5800	5800	5410	5000	4280	3820	2800	2100	1430		
NOT-EXT	5800	5800	5410	4880	3890	3060	2140	1510	1060		
Stage 4											
W/R	13.1	14	16	19	22	26	29	32	35.6		
MAX-EXT	4470	4240	3700	3070	2620	2190	1980	1770	1410		
HALF-EXT	4470	4240	3700	3070	2540	1670	1420	1140	850		
NOT-EXT	4470	4240	3700	2720	1950	1210	980	780	550		
Stage 5											
W/R	16.4	18	22	26	29	32	36	39	43.3		
MAX-EXT	2270	2090	1710	1410	1300	1200	1060	960	830		
HALF-EXT	2270	2090	1710	1410	1240	1100	930	750	610		
NOT-EXT	2270	2090	1710	1200	980	780	620	520	440		
Stage 6											
W/R	19.7	23	26	29	32	36	39	42	45	49.9	
MAX-EXT	1160	950	850	750	640	620	520	510	430	390	
HALF-EXT	1160	950	850	750	640	620	520	510	430	390	
NOT-EXT	1160	950	850	750	640	550	510	450	410	280	
◆ 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 ◆ Working Radius (W/R)											

Load Charts: URW506

URW506 (1-Part Hook)											
Stage 1+2+3											
W/R	10	12.1	13	14	16	17	21	24	28		
MAX-EXT	1630	1630	1630	1630	1630	1630	1630	1630	1630		
HALF-EXT	1630	1630	1630	1630	1630	1630	1630	1630	1430		
NOT-EXT	1630	1630	1630	1630	1630	1630	1630	1510	1060		
Stage 4											
W/R	13.1	14	16	19	22	26	29	32	35.6		
MAX-EXT	1630	1630	1630	1630	1630	1630	1630	1630	1410		
HALF-EXT	1630	1630	1630	1630	1630	1630	1420	1140	850		
NOT-EXT	1630	1630	1630	1630	1630	1210	980	780	550		
Stage 5											
W/R	16.4	18	22	26	29	32	36	39	43.3		
MAX-EXT	1630	1630	1630	1410	1300	1200	1060	960	830		
HALF-EXT	1630	1630	1630	1410	1240	1100	930	750	610		
NOT-EXT	1630	1630	1630	1200	980	780	620	520	440		
Stage 6											
W/R	19.7	23	26	29	32	36	39	42	45	49.9	
MAX-EXT	1160	950	850	750	640	620	520	510	430	390	
HALF-EXT	1160	950	850	750	640	620	520	510	430	390	
NOT-EXT	1160	950	850	750	640	550	510	450	410	280	
◆ 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 ◆ Working Radius (W/R)											

Load Charts: URW547

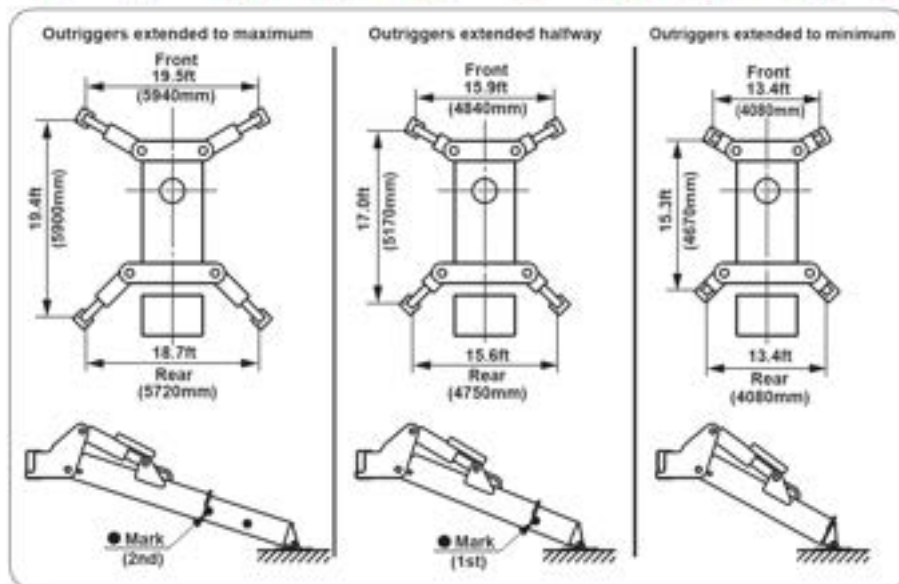
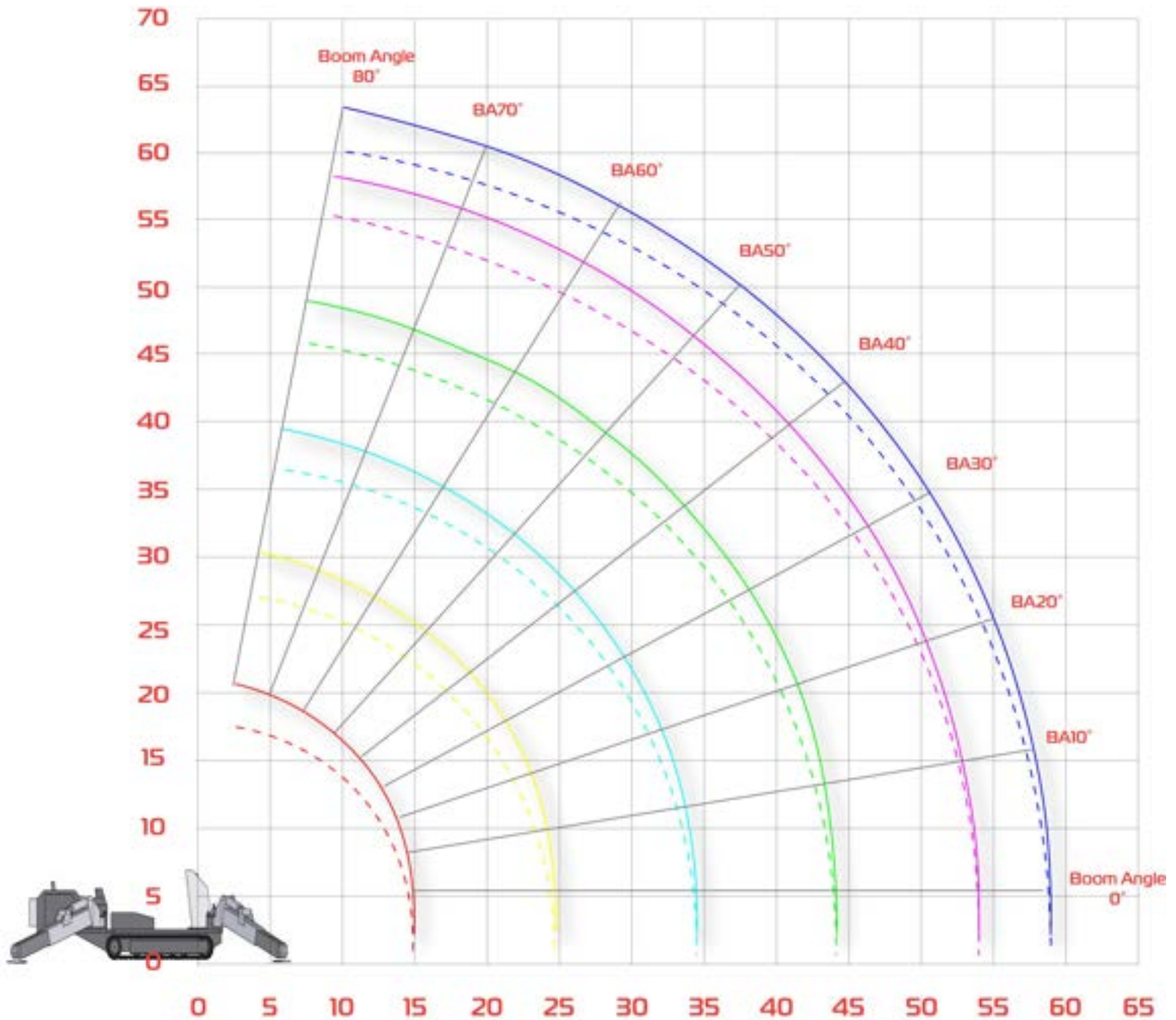
URW547 (4-Part Hook)														
15.5' and 25.2'														
W/R	8	10	11	13	14	16	18	19	23	24.6				
MAX-EXT	8920	7710	7010	5760	5350	4610	4080	3830	3080	2790				
HALF-EXT	8920	7710	7010	5760	5300	4350	3710	3400	2340	2000				
NOT-EXT	8920	7710	7010	5760	5160	3960	3020	2660	1760	1470				
34.9'														
W/R	11.5	13	16	19	23	26	29	32	34.4					
MAX-EXT	6720	5760	5000	4600	4070	3680	3450	3080	2850					
HALF-EXT	6720	5450	4620	4300	3750	3090	2820	2400	2100					
NOT-EXT	6720	5450	4400	3900	3080	2450	2150	1760	1550					
44.5'														
W/R	13	14	16	19	23	26	29	32	36	39	42	43.9		
MAX-EXT	4960	4510	3960	3230	2640	2330	2120	1930	1570	1240	1040	940		
HALF-EXT	4960	4350	3750	3100	2425	2000	1700	1400	1100	920	780	690		
NOT-EXT	4960	4350	3750	2810	1870	1540	1290	1030	810	670	550	480		
54'														
W/R	16	18	19	23	26	29	32	36	39	42	46	49	52	53.4
MAX-EXT	2530	2210	2110	1710	1490	1380	1280	1120	1020	900	740	620	520	480
HALF-EXT	2530	2210	2110	1650	1440	1280	1140	1000	890	790	660	540	450	420
NOT-EXT	2530	2100	2060	1650	1220	1050	980	860	760	640	500	420	340	330
59.1'														
W/R	19	23	26	29	32	36	39	42	46	49	52	55	58.5	
MAX-EXT	770	660	620	560	490	460	440	420	390	370	350	300	220	
HALF-EXT	770	660	620	560	490	460	440	420	390	370	350	300	220	
NOT-EXT	770	660	620	560	490	460	440	420	390	370	350	300	220	
◆ The above tables are for RATED LOADS; in order to determine the SPYDERCRANE's NET-RATED Capacity, deduct 110 lbs (if using the 4-Part Hook Block). ◆ To use this Load Chart, you must determine the SPYDERCRANE's: ◆ Deployment State ◆ Boom Stage ◆ Working Radius (W/R)														

Load Charts: URW547

URW547 (1-Part Hook)														
15.5' and 25.2'														
W/R	8	10	11	13	14	16	18	19	23	24.6				
MAX-EXT	2200	2200	2200	2200	2200	2200	2200	2200	2200	2200				
HALF-EXT	2200	2200	2200	2200	2200	2200	2200	2200	2200	2000				
NOT-EXT	2200	2200	2200	2200	2200	2200	2200	2200	1760	1470				
34.9'														
W/R	11.5	13	16	19	23	26	29	32	34.4					
MAX-EXT	2200	2200	2200	2200	2200	2200	2200	2200	2200					
HALF-EXT	2200	2200	2200	2200	2200	2200	2200	2200	2100					
NOT-EXT	2200	2200	2200	2200	2200	2200	2150	1760	1550					
44.5'														
W/R	13	14	16	19	23	26	29	32	36	39	42	43.9		
MAX-EXT	2200	2200	2200	2200	2200	2200	2120	1930	1570	1240	1040	940		
HALF-EXT	2200	2200	2200	2200	2200	2000	1700	1400	1100	920	780	690		
NOT-EXT	2200	2200	2200	2200	1870	1540	1290	1030	810	670	550	480		
54'														
W/R	16	18	19	23	26	29	32	36	39	42	46	49	52	53.4
MAX-EXT	2200	2200	2110	1710	1490	1380	1280	1120	1020	900	740	620	520	480
HALF-EXT	2200	2200	2110	1650	1440	1280	1140	1000	890	790	660	540	450	420
NOT-EXT	2200	2100	2060	1650	1220	1050	980	860	760	640	500	420	340	330
59.1'														
W/R	19	23	26	29	32	36	39	42	46	49	52	55	58.5	
MAX-EXT	770	660	620	560	490	460	440	420	390	370	350	300	220	
HALF-EXT	770	660	620	560	490	460	440	420	390	370	350	300	220	
NOT-EXT	770	660	620	560	490	460	440	420	390	370	350	300	220	

- ◆ 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
 - ◆ Working Radius (W/R)

Working Range Diagram: URW547



Load Charts: URW706

URW706 (4-Part Hook)										
Stage 1										
W/R	9	10	11.5	13	14					
MAX-EXT	13330	13200	12480	10890	8810					
HALF-EXT	13330	13200	12480	10890	8810					
NOT-EXT	13330	13200	12480	10270	8370					
Stage 2										
W/R	6.5	10	11.5	13	16.5	19.5	23	23.5		
MAX-EXT	13330	13160	12300	10650	8600	6400	5040	4500		
HALF-EXT	13330	13160	12300	10650	8600	5200	3840	3520		
NOT-EXT	13330	13160	12300	10440	5900	3550	2630	2420		
Stage 3										
W/R	9	13	16.5	19.5	23	26	30	32	33	
MAX-EXT	10140	10140	8340	6450	5370	4140	2920	2130	2200	
HALF-EXT	10140	10140	8340	5480	3950	3010	2100	1600	1650	
NOT-EXT	10140	10140	6200	3640	2750	2010	1470	1030	980	
Stage 4										
W/R	16.5	19.5	23	26	30	32	36	39	42	
MAX-EXT	6580	5630	4840	4230	3300	2700	2200	1900	1100	
HALF-EXT	6580	5580	4170	3240	2430	1950	1550	1340	990	
NOT-EXT	6100	4000	2960	2350	1670	1290	1050	840	630	
Stage 5										
W/R	19.5	26	30	32	36	39	43	46	49	52
MAX-EXT	5200	3900	3090	2720	2320	2000	1600	1400	1220	990
HALF-EXT	5200	3470	2520	2160	1770	1450	1180	990	770	650
NOT-EXT	4300	2470	1780	1520	1210	1000	570	610	480	390
Stage 6										
W/R	26	32	39	46	52	59	61			
MAX-EXT	3100	2290	1890	1420	1010	660	550			
HALF-EXT	3100	2280	1560	1090	790	550	440			
NOT-EXT	2540	1630	1120	720	500	300	230			

- ♦ The above tables are for RATED LOADS; in order to determine the SPYDERCRANE's NET-RATED Capacity, deduct **110 lbs** (if using the 4-Part Hook Block).
- ♦ To use this Load Chart, you must determine the SPYDERCRANE's:
 - ♦ Deployment State
 - ♦ Boom Stage
 - ♦ Working Radius (W/R)

Load Charts: URW706

URW706 (1-Part Hook)										
Stage 1										
W/R	9	10	11.5	13	14					
MAX-EXT	3400	3400	3400	3400	3400					
HALF-EXT	3400	3400	3400	3400	3400					
NOT-EXT	3400	3400	3400	3400	3400					
Stage 2										
W/R	6.5	10	11.5	13	16.5	19.5	23	23.5		
MAX-EXT	3400	3400	3400	3400	3400	3400	3400	3400		
HALF-EXT	3400	3400	3400	3400	3400	3400	3400	3400		
NOT-EXT	3400	3400	3400	3400	3400	3400	2630	2420		
Stage 3										
W/R	9	13	16.5	19.5	23	26	30	32	33	
MAX-EXT	3400	3400	3400	3400	3400	3400	2920	2130	2200	
HALF-EXT	3400	3400	3400	3400	3400	3010	2100	1600	1650	
NOT-EXT	3400	3400	3400	3400	2750	2010	1470	1030	980	
Stage 4										
W/R	16.5	19.5	23	26	30	32	36	39	42	
MAX-EXT	3400	3400	3400	3400	3300	2700	2200	1900	1100	
HALF-EXT	3400	3400	3400	3240	2430	1950	1550	1340	990	
NOT-EXT	3400	3400	2960	2350	1670	1290	1050	840	630	
Stage 5										
W/R	19.5	26	30	32	36	39	43	46	49	52
MAX-EXT	3400	3400	3090	2720	2320	2000	1600	1400	1220	990
HALF-EXT	3400	3400	2520	2160	1770	1450	1180	990	770	650
NOT-EXT	3400	2470	1780	1520	1210	1000	570	610	480	390
Stage 6										
W/R	26	32	39	46	52	59	61			
MAX-EXT	3100	2290	1890	1420	1010	660	550			
HALF-EXT	3100	2280	1560	1090	790	550	440			
NOT-EXT	2540	1630	1120	720	500	300	230			

- ♦ The above tables are for RATED LOADS; in order to determine the SPYDERCRANE's NET-RATED Capacity, deduct **45 lbs** (if using the 1-Part Hook Block).
- ♦ To use this Load Chart, you must determine the SPYDERCRANE's:
 - ♦ Deployment State
 - ♦ Boom Stage
 - ♦ Working Radius (W/R)

Understanding CMU Codes: Common Codes and System Error Codes

Common 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	

System Error Codes		
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.
8.8.	Diagnostic Mode	No hydraulic pressure. Likely due to engine not running or completely drained batteries. Also check the E-Stop for functionality.

Aerial Work Platform (URW 306, 376(T), 506 & 547)

The Aerial Work Platform, General Information

The SPYDERCRANE Aerial Work Platform (AWP) is an optional accessory for your 300-series SPYDERCRANE into a personnel-rated aerial lift. However there are some considerations for using the AWP with your SPYDERCRANE:

- ◆ The outriggers MUST BE deployed to the MAXIMUM-EXTENDED (MAX-EXT) Deployment State.
- ◆ All personnel using the AWP must wear fall-protection PPE, with the lanyard attached to the AWP's dedicated anchor point.
- ◆ The Rated Load Capacity of the AWP is 300 lbs. This includes the operator, tools, and all materials being lifted in the AWP.
- ◆ The AWP, when fully loaded, weighs 450 lbs.
- ◆ All other safe lifting practices MUST BE observed when using the AWP including, but not limited to:
 - ◆ Blocking and cribbing the SPYDERCRANE, proper site planning, including electrical hazards awareness and avoidance and all inspections.

To Prepare the SPYDERCRANE for AWP Installation

Before installing the AWP, you MUST prepare the SPYDERCRANE for personnel lifting and boom-tip accessory installation:

- ◆ The SPYDERCRANE's hook block must be uninstalled and the wire rope stored to the Wire Rope Drum (or uninstalled).

Vehicle Start Condition

- ◆ 300-500Series
- ◆ Deployed (MAX-EXT)
- ◆ Hook Block and Wire Rope uninstalled and removed

Personnel and Time Needed

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

Tools and Equipment Needed

- ◆ Compatible SPYDERCRANE AWP (with installation hardware)

To Install the AWP

1. Raise the boom to 5° and SLEW over-the-front.
2. Place the AWP 5 feet in front of the SPYDERCRANE, orient the AWP so that the side with the Brake Control is facing the SPYDERCRANE and Fall-Protection Anchor Point is facing AWAY from the SPYDERCRANE.
3. Unlock the Yoke's Brake by turning the dial of the Brake Control counterclockwise. The Yoke Brake is a friction device, so as you turn the dial, the Yoke will become increasingly loose.
4. Angle the Yoke so that is at roughly 20°, pointing at the Jib Hood of the SPYDERCRANE and lock the brake by turning the Brake Control dial clockwise.
5. Place the end of the Yoke inside the Jib Hood.
6. Line up the holes in the Yoke with the holes in the SPYDERCRANE's Jib Hood.
7. Secure the Yoke with the two mounting pins and safety-clips (if the mounting pins are misplaced, the Jib Pins can be used in their place).
8. Unlock the Yoke Brake, using the Brake Control to allow the AWP to swing freely.

Aerial Work Platform (URW 306, 376(T), 506 & 547)

Using the Aerial Work Platform, Rules and Restrictions

Before using the SPYDERCRANE with its installed AWP, you must read and comply with these directions:

- ◆ Read all warning labels, decals, and placards on SPYDERCRANE and the AWP.
- ◆ When the AWP is being moved by the SPYDERCRANE, leave the Yoke Brake unlocked to allow the AWP to swing freely.
- ◆ When the AWP has been maneuvered into position, lock the Yoke Brake to prevent the AWP from swinging.
- ◆ DO NO load more than 300 lbs. into the AWP.
- ◆ Even if the SPYDERCRANE is operated in Remote Control from the AWP, a qualified operator should remain on the ground with the SPYDERCRANE during personnel lifting operations.
- ◆ The AWP MUST ONLY be maneuvered in the working radii labeled "SAFE USE" in the AWP Load Chart (see below).
 - ◆ The AWP MUST NEVER be maneuvered in the working radii labeled "PROHIBITED ZONE" in the AWP Load Chart (see below).
 - ◆ If using the Rated Load Chart for the SPYDERCRANE, NEVER maneuver the AWP to a Working Radius LESS THAN 1,150 lbs.
 - ◆ If your SPYDERCRANE is equipped with an LMI and it has an option for AWP Installation in the Crane Configuration Screen, you MUST use this AWP Installation configuration setting.
 - ◆ If your SPYDERCRANE is equipped with an LMI and IT DOES NOT have an option for AWP Installation in the Crane Configuration Screen, you MUST use the regular boom configuration settings and closely monitor the Rated Load Capacity Indicator and keep it ABOVE 1,150 lbs.
 - ◆ Never allow the loaded AWP to swing into the area marked "DANGER ZONE" on the Yoke Brake when the boom is in Stage 5.
 - ◆ Never extend the AWP to BEYOND Stage 5.

URW306/306-T/376 AWP LOAD CHART												
ONLY USE THE AWP WHEN THE SPYDERCRANE IS DEPLOYED MAX-EXT!												
Stage 1+2												
W/R	6	8	10	11	13	15	17	18.6				
MAX-EXT	SAFE USE AREA											
Stage 3												
W/R	8.5	10	11	13	15	16	18	20	23	25.8		
MAX-EXT	SAFE USE AREA								PROHIBITED ZONE			
Stage 4												
W/R	13	15	16	20	23	26	30	33				
MAX-EXT	SAFE USE AREA						PROHIBITED ZONE					
Stage 5												
W/R	15	16	20	23	26	30	33	36	40.2			
MAX-EXT	SAFE USE AREA		PROHIBITED ZONE									
Stage 6												
W/R	16	18	20	23	26	30	33	36	39	43	47.3	
MAX-EXT	PROHIBITED ZONE											

Aerial Work Platform (URW 306, 376(T), 506 & 547)

URW506 AWP LOAD CHART

ONLY USE THE AWP WHEN THE SPYDERCRANE IS DEPLOYED MAX-EXT!

Stage 1+2+3

W/R	10	12.1	13	14	16	17	21	24	28
MAX-EXT	SAFE USE AREA								

Stage 4

W/R	13.1	14	16	19	22	26	29	32	35.6
MAX-EXT	SAFE USE AREA								

Stage 5

W/R	16.4	18	22	26	29	32	36	39	43.3
MAX-EXT	SAFE USE AREA						PROHIBITED ZONE		

Stage 6

W/R	19.7	23	26	29	32	36	39	42	45	49.9
MAX-EXT	SAFE	PROHIBITED ZONE								

URW547 AWP LOAD CHART

ONLY USE THE AWP WHEN THE SPYDERCRANE IS DEPLOYED MAX-EXT!

15.5' and 25.2'

W/R	8	10	11	13	14	16	18	19	23	24.6
MAX-EXT	SAFE USE AREA									

34.9'

W/R	11.5	13	16	19	23	26	29	32	34.4
MAX-EXT	SAFE USE AREA								

44.5'

W/R	13	14	16	19	23	26	29	32	36	39	42	43.9
MAX-EXT	SAFE USE AREA										PROHIBITED ZONE	

54'

W/R	16	18	19	23	26	29	32	36	39	42	46	49	52	53.4
MAX-EXT	SAFE USE AREA							PROHIBITED ZONE						

59.1'

W/R	19	23	26	29	32	36	39	42	46	49	52	55	58.5
MAX-EXT	PROHIBITED ZONE												

Aerial Work Platform (URW 706)

The Aerial Work Platform, General Information

The SPYDERCRANE Aerial Work Platform (AWP) is an optional accessory for your URW706 SPYDERCRANE into a personnel-rated aerial lift. However there are some considerations for using the AWP with your SPYDERCRANE:

- ◆ The outriggers **MUST BE** deployed to the **MAXIMUM-EXTENDED (MAX-EXT)** Deployment State.
- ◆ All personnel using the AWP must wear fall-protection PPE, with the lanyard attached to the AWP's dedicated anchor point.
- ◆ The Rated Load Capacity of the AWP is 300 lbs. This includes the operator, tools, and all materials being lifted in the AWP.
- ◆ The AWP, when fully loaded, weighs 450 lbs.
- ◆ All other safe lifting practices **MUST BE** observed when using the AWP including, but not limited to:
 - ◆ Blocking and cribbing the SPYDERCRANE, proper site planning, including electrical hazards awareness and avoidance and all inspections.

To Prepare the SPYDERCRANE for AWP Installation

Before installing the AWP, you **MUST** prepare the SPYDERCRANE for personnel lifting and boom-tip accessory installation:

- ◆ The SPYDERCRANE's hook block must be uninstalled and the wire rope stored to the Wire Rope Drum (or uninstalled).
- ◆ The entire Jib System must be dismounted and removed from the SPYDERCRANE.
- ◆ The AWP Boom Tip Adapter (BTA) must be installed after the Jib System is removed, the Jib Pins from the Jib System are used to install the BTA.

Vehicle Start Condition

- ◆ URW706
- ◆ Deployed (MAX-EXT)
- ◆ Hook Block, Wire Rope, and Jib System uninstalled and removed
- ◆ AWP BTA installed

Personnel and Time Needed

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

Tools and Equipment Needed

- ◆ Compatible SPYDERCRANE AWP (with installation hardware)

To Install the AWP

1. Raise the boom to 5° and SLEW over-the-front.
2. Place the AWP 5 feet in front of the SPYDERCRANE, orient the AWP so that the side with the Brake Control is facing the SPYDERCRANE and Fall-Protection Anchor Point is facing AWAY from the SPYDERCRANE.
3. Unlock the Yoke's Brake by turning the dial of the Brake Control counterclockwise. The Yoke Brake is a friction device, so as you turn the dial, the Yoke will become increasingly loose.
4. Angle the Yoke so that is at roughly 20°, pointing at the Jib Hood of the SPYDERCRANE and lock the brake by turning the Brake Control dial clockwise.
5. Place the end of the Yoke inside the Jib Hood.
6. Line up the holes in the Yoke with the holes in the SPYDERCRANE's Jib Hood.
7. Secure the Yoke with the two mounting pins and safety-clips (if the mounting pins are misplaced, the Jib Pins can be used in their place).
8. Unlock the Yoke Brake, using the Brake Control to allow the AWP to swing freely.

Aerial Work Platform (URW 706)

Using the Aerial Work Platform, Rules and Restrictions

Before using the SPYDERCRANE with its installed AWP, you must read and comply with these directions:

- ◆ Read all warning labels, decals, and placards on SPYDERCRANE and the AWP.
- ◆ When the AWP is being moved by the SPYDERCRANE, leave the Yoke Brake unlocked to allow the AWP to swing freely.
- ◆ When the AWP has been maneuvered into position, lock the Yoke Brake to prevent the AWP from swinging.
- ◆ DO NO load more than 300 lbs. into the AWP.
- ◆ Even if the SPYDERCRANE is operated in Remote Control from the AWP, a qualified operator should remain on the ground with the SPYDERCRANE during personnel lifting operations.
- ◆ The AWP MUST ONLY be maneuvered in the working radii labeled "SAFE USE" in the AWP Load Chart (see below).
 - ◆ The AWP MUST NEVER be maneuvered in the working radii labeled "PROHIBITED ZONE" in the AWP Load Chart (see below).
 - ◆ If using the Rated Load Chart for the SPYDERCRANE, NEVER maneuver the AWP to a Working Radius LESS THAN 1,150 lbs.
 - ◆ You MUST AWP Installed configuration setting in the Crane Configuration Screen.
 - ◆ Never allow the loaded AWP to swing into the area marked "DANGER ZONE" on the Yoke Brake when the boom is Stage 5 or Stage 6.
 - ◆ The LMI WILL NOT prevent use in Stage 5, 46' to 52' Working Radius. This is a limiting factor of the basket and must be accounted for.

URW706									
ONLY USE THE AWP WHEN THE SPYDERCRANE IS DEPLOYED MAX-EXT!									
Stage 1									
W/R	9	10	11.5	13	14				
MAX-EXT	SAFE USE AREA								
Stage 2									
W/R	6.5	10	11.5	13	16.5	19.5	23	23.5	
MAX-EXT	SAFE USE AREA								
Stage 3									
W/R	9	13	16.5	19.5	23	26	30	32	33
MAX-EXT	SAFE USE AREA								
Stage 4									
W/R	16.5	19.5	23	26	30	32	36	39	42
MAX-EXT	SAFE USE AREA								PROHIBITED ZONE
Stage 5									
W/R	19.5	26	30	32	36	39	43	46	49 52
MAX-EXT	SAFE USE AREA							PROHIBITED ZONE	
Stage 6									
W/R	26	32	39	46	52	59	61		
MAX-EXT	SAFE USE AREA				PROHIBITED ZONE				

Comments/Concerns

This Operator's Reference Guide for the 300- , 500-, and 700-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