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ZOM-10000-X

Hydraulic RHGSE Quick-Start Guide

Hydraulic Rescue Hoist Ground Support Equipment
Reference: ZOM-10000-X

Appendix B

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B.1 Information

B.1.1 Support

Please contact Zephyr International LLC with any questions.

Zephyr Technical Support

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Online Support

Visit website at www.zephyrintl.com

- Sign up for the Members Only section, browse available information and resources.
- Register your serial number information and identify a point of contact for future service bulletin release(s).

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B.1.3 Warnings & Notes



This document is intended to be utilized as a QuickStart Guide and is not a replacement for the ZOM-10000-X-X Rev H or ZOM-15000-3 Rev D Operation and Maintenance Manuals. Operators should carefully review the detailed contents of the aforementioned documents before proceeding. Failure to do so could cause injury or damage to the aircraft, hoist, and RHGSE.

Never operate the RHGSE with loose clothing, jewelry, ties, long hair, or anything that may become entangled. Failure to do so could cause injury or cause damage to the aircraft, rescue hoist, or RHGSE.

Never actuate the Extend/Retract Rocker Switch unless all prerequisites for running the RHGSE have been satisfied. Components will begin to rotate rapidly, and anything placed on the Tub and Spooler will be ejected. Failure to do so could cause injury or cause damage to the aircraft, rescue hoist, or RHGSE.

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Always use care while operating a rescue hoist. Never allow the rescue hoist cable to kink or get dirty. Failure to do so could cause injury or cause damage to the rescue hoist and the RHGSE.

Always wear appropriate PPE while handling the rescue hoist cable.



⚠ CAUTION


The maximum sustained load should not exceed 300 lbs. (136.08kg) for repetitive evolutions. Excessive use of the RHGSE at high loads should be limited without regular in-flight extension of the rescue hoist cable. Failure to relieve the trapped twist via in-flight extension after heavy loading could cause damage to the rescue hoist and RHGSE.

During cable conditioning, do not exceed a maximum load of 300 lbs. (136.08kg) with the RHGSE. The cable should then be relieved by fully extending the cable during in-flight operations and retracted with a maximum load of 200 lbs. (90.71kg). Failure to do so could cause damage to the rescue hoist and RHGSE.

During cable conditioning, do not exceed **three** hoist cycles before relieving the twist from the cable by fully extending the cable during in-flight operations. Failure to do so could cause damage to the rescue hoist and RHGSE.

NOTE:

Reference the O&M Manuals as required for more detailed instruction. Visit our website for training videos.

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B.2 Quick-Start Guide

B.2.1 Augmentation Codes


Augmentation Codes indicate an augmentation to the standard operation of the RHGSE. Such as a Water Rinse, use of a MagSens System, or steps that are specific to either a “CE” or “Standard” configuration of the RHGSE.

- (WR): Water Rinse - Steps preceded by “(WR)” should be skipped if a water rinse is not desired.
- (MS): MagSens - Steps preceded by “(MS)” should be skipped if a MagSens is not being employed.
- (CE): CE Specific – Steps Preceded by “(CE)” will only pertain to CE configurations of the RHGSE and can be skipped if a Standard configuration is being used.
- (ST): Standard Specific – Steps Preceded by “(ST)” will only pertain to Standard configurations of the RHGSE and can be skipped if a CE configuration is being used.

B.2.2 Pre-Check		Reference: ZOM-10000-X-X Rev H, Appendix C – Section 3
Step 1	Check Hydraulic RHGSE for any signs of wear or damage.	
Step 2	Confirm Rotatub Clutch static breakaway is 2-3 lbs. (0.9-1.4) kg.	
Step 3	Check Battery Voltage	
Step 4	Check Electrical Connections	
Step 5	Replace Lubridryer Pads and fill oil reservoir with OEM recommended lubricant.	
Step 6	(WR) Ensure the Tub nuts are tight, and the Tub Plug is firmly pressed into the Tub Drain Hole.	


B.2.3 MagSens Setup		Reference: ZOM-10000-X-X Rev H – Section 5.3 & ZOM-15000-3 Rev D
 WARNING <p>The MagSens contains powerful earth magnets. Keep away from magnetically sensitive items.</p>  CAUTION <p>The MagSens Head is a sensitive electronic device and should be handled with care. Always keep hold of the MagSens Cover when opening the Latch to prevent it from springing open. Failure to do so could cause damage to the MagSens Head.</p>		
Step 1	(MS) Install MagSens Head to the Upright Bracket using the thumb screws.	
Step 2	(MS) Confirm the “Power” switch on the Stand Alone Control Station is in the “OFF” position.	
Step 3	(MS) Install the electrical cable between the MagSens and the Stand Alone Control Station.	
Step 4	(MS) Install AC Power Cable and turn the “Power” switch ON.	
Step 5	(MS) Open and turn on the MagSens laptop.	

B.2.4 Hydraulic RHGSE Setup		Reference: ZOM-10000-X-X Rev H – Section 5.3
Step 1	Position RHGSE parallel to aircraft with the Lubridryer / MagSens entry point directly below the rescue hoist cable.	
Step 2	Engage the Swivel locks and disengage the Caster Wheel Locks to enable to RHGSE to self-align with the rescue hoist.	
Step 3	Actuate Battery Select Switch to position #1 for Battery OR position #2 for Alternate Power Source.	
Step 4	Open the Safety Covers and the Lubridryer.	
Step 5	(MS) Slowly open the MagSens.	

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Step 6	Confirm both the Exit Roller and Pressure Roller Tensioning Arms are locked in the open position.
Step 7	Turn on power to the aircraft hoist system.
Step 8	Extend 20-25 feet of cable from the rescue hoist.
Step 9	Insert cable into the Lubridryer. Close and Latch the Lubridryer.
Step 10	(MS) Insert cable into the MagSens. Close and Latch the MagSens.
Step 11	Wrap cable tightly around the Capstans.
Step 12	Engage the Pressure and Exit Rollers and stow the pins in the auxiliary holes.
Step 13	Route cable through the Guide Rollers and down into the Rotatub.
Step 14	Confirm cable is lying flat on the bottom lip of the Spooler. ⚠ CAUTION Improper placement may cause damage to the RHGSE or rescue hoist cable.
Step 15	Place hook in groove on top of Spooler with the cable pointing downward or laying horizontally.
Step 16	Confirm 3-5 ft. of excess cable is present inside the Spooler.
Step 17	Close and latch the Safety Covers.
Step 18	(ST) Turn on the Digital Displays and TARE if necessary.
Step 19	(WR) Fill the Rotatub with 10 gal. of fresh water. NOTE: If possible, submerge the rescue hoist hook in the water.
Step 20	Confirm the Extend/Retract Rocker Switch is in the OFF (Center) position and the “E-Stop” Button is depressed.
Step 21	Plug the Battery Charger into an appropriate power source.

B.2.5 Extending		Reference: ZOM-10000-X-X Rev H – Section 5.4
⚠ WARNING		
While running any RHGSE, always be aware of the cable position and wrapping. Be prepared to stop quickly if necessary.		
⚠ CAUTION		
Use Caution while approaching the full out position of the rescue hoist. Ensure the hoist limit switches are functioning properly before the cable is pulled off the drum.		
If the rescue hoist cable begins to climb to the top of the spooler, the Rotatub Clutch is set too high and needs to be reduced. Remove the rescue hoist cable from the RHGSE and adjust the clutch using the O&M Manual.		
NOTE:		
The Hydraulic RHGSE safety circuit is coupled to multiple sensors and switches. Power to the RHGSE will be severed by the safety circuit if the “E-Stop” button is depressed or either of the Safety Covers are opened.		
Step 1	(CE) Disengage the “E-Stop” button.	
Step 2	(CE) Enable the RHGSE. Press the “Extend Start” button. NOTE: The “Extending” Green Neon Indicator will illuminate and the RHGSE will begin to generate a load.	
Step 3	Extend Rescue Hoist Cable at a steady and moderate speed until the desired test length is achieved, or the full out limit switch is activated.	
Step 4	Turn off power to the RHGSE by actuating the Extend/Retract Rocker Switch to the OFF (center) position. NOTE: The “Extending” Green Neon Indicator and the “Extend Armed” Orange Neon Indicator will turn off.	

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B.2.6 Retracting

Reference: ZOM-10000-X-X Rev H – Section 5.5

WARNING

Load set point should never be increased statically. Always begin retracting the rescue hoist prior to positive load adjustments. Static adjustments could cause a stalled hydraulic system, which could result in the RHGSE lifting off the ground unexpectedly. This could cause injury, or cause damage to the aircraft, rescue hoist, and/or cause personal injury.

Load set points near 600 lbs. may cause the RHGSE to lift off the ground unexpectedly. This could damage the RHGSE, airframe, rescue hoist cable, and/or cause personal injury.

CAUTION


Always be aware of the remaining length of rescue hoist cable inside the Rotatub. Frequently look down to visually inspect the remainder. When there are less than 3 layers left in the Rotatub, slow down to quarter speed. Stop as soon as the bottom lip of the Spooler is visible.

Do not exceed loads of 600 lb. (272 kg.) while retracting.

NOTE:

It is good practice to reduce the retracting load to 100 lbs. prior to finishing the retracting run.

Step 1	Open the Oil Shut Off Valve on the side of the Lubridryer if OEM allows oiling the cable.
Step 2	(WR) Change the LubriDryer Pads and turn the Air Compressor ON.
Step 3	Enable RHGSE Retract. Activate the Extend/Retract Rocker Switch to the “RETRACT (UP)” Position. NOTE: The Orange Light labeled “Retracting” should illuminate. This indicates that the RHGSE is ready to generate a load for the retract hoisting operation.
Step 4	Operate the rescue hoist in the up/retract/in direction at a moderate and steady speed. NOTE: 100 ft./min max during water rinse cycles.
Step 5	Adjust the retracting load. Turn the Load Adjustment Knob counterclockwise to increase the load. NOTE: 100 lbs. max. during water rinse cycles.
Step 6	Stop hoisting operations when the bottom lip of the Spooler is visible OR the Siren begins to sound.
Step 7	Disable the RHGSE. Actuate the Extend/Retract Rocker Switch to the OFF (Center) position.
Step 8	(CE) Engage the “E-Stop” button.
Step 9	Open the Safety Covers.
Step 10	Disengage the Pressure and Exit Roller Assemblies and pin them open.
Step 11	Remove the rescue hoist hook and cable from the Tub and Spooler, and Guide Wheels. Place the hook horizontally atop the Spooler Slot.
Step 12	Carefully unwrap the cable from the Capstans. Neatly lay the rescue hoist cable in front of RHGSE.
Step 13	Slowly operate the rescue hoist in the up/retract/in direction until the rescue hoist hook begins to lift from the Spooler. With a gloved hand, pull the remaining cable through the Lubridryer and MagSens to complete the inspection cycle.
Step 14	Remove the cable from the RHGSE.

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B.2.7 600 lbs. Hook Check Reference: ZOM-10000-X-X Rev H – Section 5.6

⚠ WARNING

Never touch a cable that is under tension. Failure to do so could cause injury.
Never place any body parts between the RHGSE and the ground when it is raised from the ground. Doing so could cause injury.
Never apply a load to a hook that has not been visually inspected for proper assembly. Failure to do so could cause injury or cause damage to the aircraft, rescue hoist, and RHGSE.

⚠ CAUTION

Do not allow the RHGSE to swing towards the aircraft when lifting it. Doing so could cause damage to the aircraft, hoist and RHGSE.

Step 1	Visually inspect the ball end and last few inches of cable for any signs of wear or degradation
Step 2	Confirm proper hook assembly per OEM and/or institutional instructions.
Step 3	Attach rescue hoist hook to the yellow Nylon Tether and slowly operate the rescue hoist in the up/retract/in direction until the RHGSE wheels have cleared the ground to apply a 600 lbs. load onto the rescue hoist hook.
Step 4	Carefully and slowly operate the rescue hoist in the down/extend/out direction until the RHGSE is in full contact with the ground.
Step 5	Detach the rescue hoist hook from the RHGSE and operate the rescue hoist in the up/retract/in direction until the hook is homed.
Step 6	Fully retract the rescue hoist cable.

B.2.8 Clean Up Reference: ZOM-10000-X-X Rev H, Appendix C - C.6

Step 1	Disable hoist power.
Step 2	Close and latch the Lubridryer, Safety Covers, and MagSens (if used).
Step 3	Close the LubriDryer Oiler Valve.
Step 4	Actuate the Battery Select Switch to the OFF position.
Step 5	Disconnect and stow the Battery Charger cable.
Step 6	(MS) Disconnect and remove the MagSens from the RHGSE. Carefully stow it in the Pelican case.
Step 7	(MS) Turn OFF the "Power" switch on the control station inside the MagSens Pelican case.
Step 8	(MS) Save MagSens data and analyze it.
Step 9	(WR) Turn OFF the Air Compressor.
Step 10	(WR) Move the RHGSE to an appropriate area and drain the water from the Tub by removing the yellow Tub Plug.
Step 11	Properly Stow all Auxiliary RHGSE items. Tools, attachments, etc.
Step 12	Return RHGSE and MagSens to their respective storage locations.
Step 13	Plug in the battery chargers for the RHGSE and the Stand Alone.
Step 14	Properly Stow this manual into the Manual Holder underneath the Tow Handle.