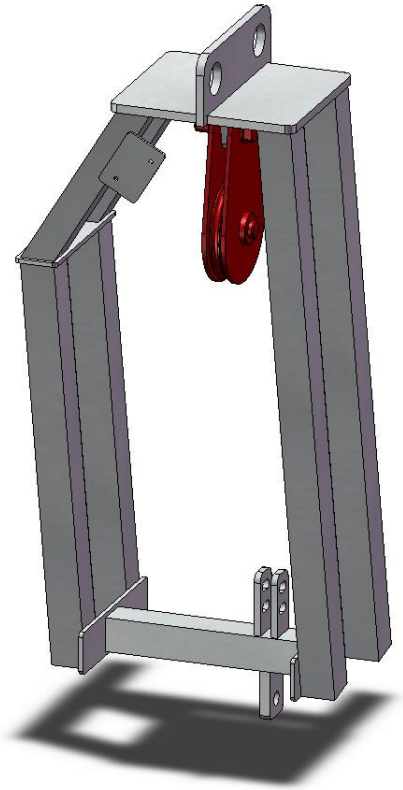
Material Hoist Kit
Operators Manual



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INTRODUCTION

This material hoist kit is used in conjunction with the SC1000 electric traction hoist or the ZMAC/1000® electric traction hoist for use in material lifting applications. The material hoist kit consists of the material hoist frame assembly and the material hoist electrical set. The frame allows the traction hoist to be mounted in the normal upright position allowing the safety mechanisms and all other functions of the hoist to operate properly and as designed. The electrical set is used to power and control the operation of the hoist.

The hoist is connected to the frame, and the frame is connected to an appropriate rigging structure for supporting the applied loads. The operator can use this setup for the lifting and lowering of material loads. This manual will cover the operational instructions for the safe use of the material hoist kit and its proper application.

In addition to reading the operator's manual for the material hoist kit, the operator shall also read the manual for either the ZMAC/1000® or SC1000 hoist whichever is being used in the application. The SC1000 traction hoist manual is manufacturer's part number 9961. The ZMAC/1000® traction hoist manual is manufacturer's part number M-604. This operator's manual shall be read by all owners/operators of the material hoist kit.

ZMAC/1000® is a registered mark of Nihon Bisoh, Co. Japan.

Hoist Duty Cycle

Both the ZMAC/1000® and the SC1000 hoists operate on a **50% duty cycle.** ZMAC/1000® has a maximum continuous run time of 30 minutes, the SC1000 has a maximum continuous run time of 40 minutes.

READ AND UNDERSTAND THIS MANUAL BEFORE OPERATION

DISCLAIMER

Due to continuing product improvement, the information contained in this document is subject to change without notice. Spider, a division of SafeWorks, LLC, shall not be held liable for technical or editorial omissions made herein, nor for any incidental or consequential damage resulting from the use of this material.

ALL PERSONNEL SHALL BE PROVIDED WITH THE PROPER SAFETY EQUIPMENT AND INSTRUCTIONS TO ASSURE THAT EACH WORKER IS OPERATING IN A SAFE WORK ENVIRONMENT, WITHOUT EXCEPTION.

Taking precedence over any specific rule, however, is the most important rule of all:

"USE COMMON SENSE"

It is a responsibility of the hoist owner/user to establish programs to:

1. train and designate hoist operators, and
2. train and designate hoist inspection and maintenance personnel.

The words **shall** and **should** are used throughout this manual in accordance with definitions in the ASME B30 standards as follows:

shall this word indicates that a rule is mandatory and must be followed.

should this word indicates that a rule is a recommendation, the advisability of which depends on the facts in each situation.

Hoist operator and hoist inspection and maintenance personnel training programs should be based on requirements in accordance with the latest edition of:

- Material Hoist section of OSHA 1926.552 - Material Hoists, Personnel Hoists, and Elevators
- ANSI/ASSE A10.5 - Safety Requirements for Material Hoists
- ANSI/ASME B30.16 - Safety Standard for Overhead Hoists (Underhung)

Such training programs should also provide information for compliance with any Federal, State, or Local Code requirements, existing plant safety rules and regulations, and the instructions furnished by the manufacturer of the hoist.

It is the responsibility of the owner/user to install, inspect, test, maintain, and operate a hoist in accordance with the ASME B30.16 Safety Standard, OSHA Regulations, ANSI/ASSE A10.5 – Safety Requirements for Material Hoists, and ANSI/NFPA 70, National Electrical Code. If the hoist is installed as part of a total lifting system, it is also the responsibility of the owner/user to comply with the applicable ASME B30 volume that addresses other types of equipment used in the system. It is further the responsibility of the owner/user to require that all personnel that will install, inspect, test, maintain, and operate the hoist read the contents of the material hoist kit operator's manual and all of the aforementioned codes and standards.

The Safety Alert Symbol ⚠ is used in this manual to indicate hazards and to alert the reader to information that should be known, understood, and followed in order to avoid DEATH or SERIOUS INJURY.

Important issues to remember during operation are provided in this manual and on labels on the hoist. These issues are indicated with the Safety Alert Symbol followed by the **DANGER, WARNING,** or **CAUTION** statement. These statements alert personnel to potential hazards, proper operation, load limitations, and more. The significance of these statements are described below.

⚠DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Labels and Instructions

READ and OBEY all Danger, Warning, Caution, and Operating Instructions on the hoist and in all manufacturers' manuals and this manual. Make sure that all labels are in place and legible prior to use.

⚠DANGER

Failure to read and comply with any one of the limitations noted in this manual and the instruction manual furnished by the manufacturer of the hoist can result in serious bodily injury or death, and/or property damage.

Daily inspections shall be performed by the hoist operator at the start of each shift, or at the time the hoist is first used during each shift. Refer to the HOIST INSPECTIONS section of this manual for additional information on daily inspections. The hoist operator shall not perform frequent or periodic inspections, or perform maintenance on a hoist unless the operator has been trained to perform such inspections or maintenance, and is designated by the hoist owner/user to perform such inspections or maintenance.

OPERATING INSTRUCTIONS

The material hoist kit consists of the material hoist frame and the material hoist electrical set. Operating the material hoist kit also requires the use of an applicable rigging system and either a ZMAC/1000® Electric or SC1000 traction hoist.

Rigging the Frame

1. The hoist frame that supports the traction hoist must be rigged to a support system (typically an outrigger beam) capable of supporting 4 times the load being lifted in addition to the weight of the hoist, frame, and wire rope. Refer to rigging labels and operating instructions to construct the proper support system. Refer to Figure 1 illustrating a typical rigging set up.

⚠ CAUTION

Support structure shall not sit on casters, wheels or any other rolling or mobile device.

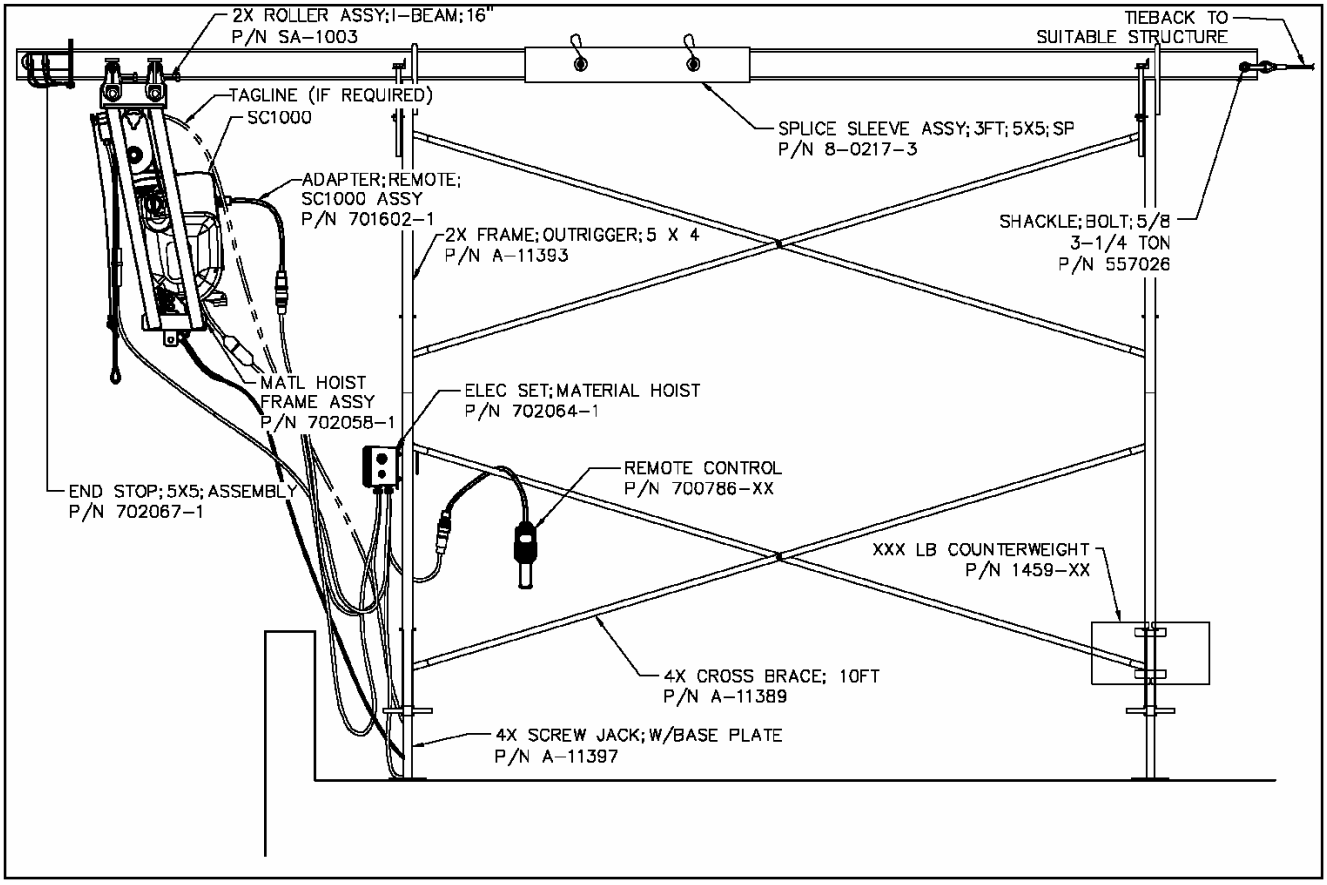


Figure 1.

2. The counterweight required is calculated with a safety factor of 4. See sample calculation for amount of counterweight required.

Load = Hoist + Frame + Wire Rope + Maximum Load Being Lifted

$$\text{Counterweight} = \frac{(4) \times (\text{Load}) \times (\text{Reach})}{\text{Backspan}}$$

500ft of wire rope = 85 lb	Maximum Load Lifted=1000 lb
Material Hoist Frame = 40 lb	Reach = 3 ft
SC1000 Traction Hoist = 99 lb	Backspan = 12 ft

Load = 85 + 40 + 99 + 1000 = 1224

$$\text{Counterweight} = \frac{4 * 1224 * 3}{12} = \mathbf{1224\ lb}$$

3. A commonly used rigging beam is the 5 x 5 outrigger beams (8-0217-5,-6, & -7). Alternate I-beams may be used; structural adequacy of I-beam size must be determined by a qualified person. The material hoist frame can be used directly with the I-beam roller (SA-1003 & SA-1003-22). Alternatively the frame can be connected with shackles (5/8";3-1/4 Ton Bolt Type) to an alternate support system capable of support 4 times the load being lifted. Refer to Figure 2 illustrating the typical rigging connections.

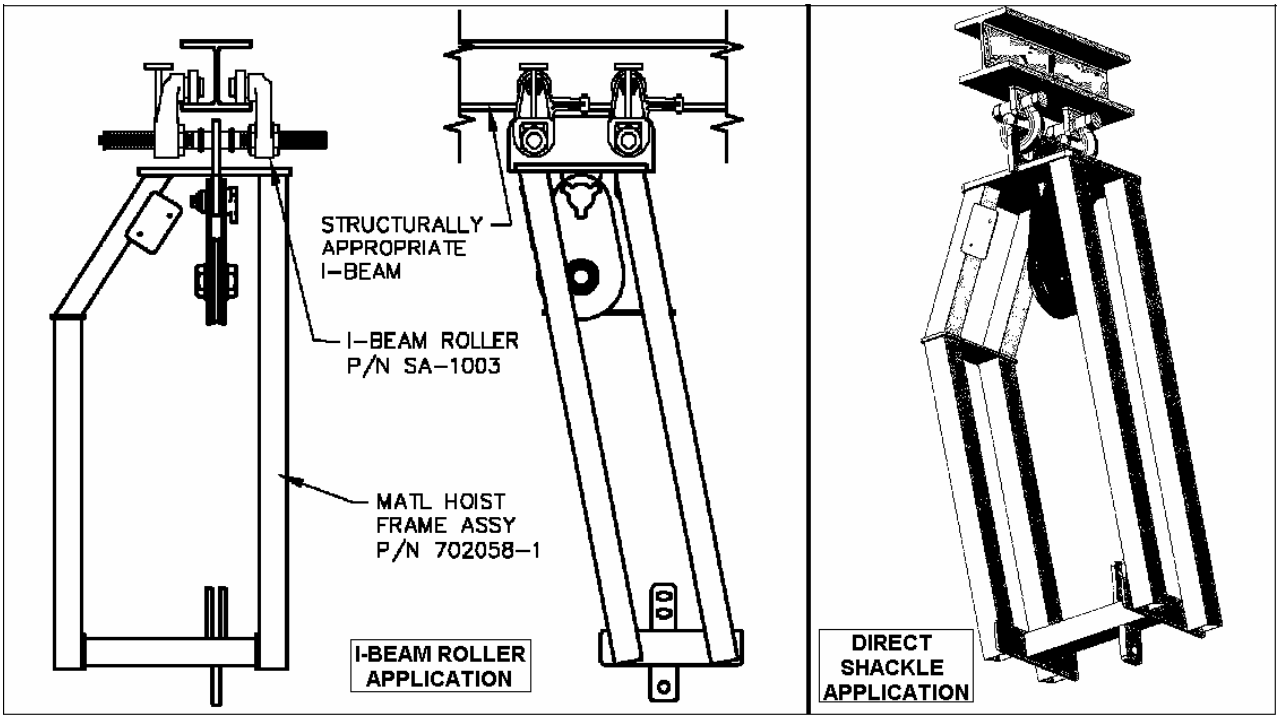


Figure 2.

Connecting Hoist to the Frame

1. The hoist frame is designed to use either the ZMAC/1000® or SC1000 electric traction hoist. Each hoist is connected to the hoist tabs on the material frame with two ½" Grade 5 bolts with applicable washers and nuts. To use the ZMAC/1000® a 90° adapter (8-0278) must be used. Refer to figure 3 illustrating the two hoist connections in the material hoist frame.

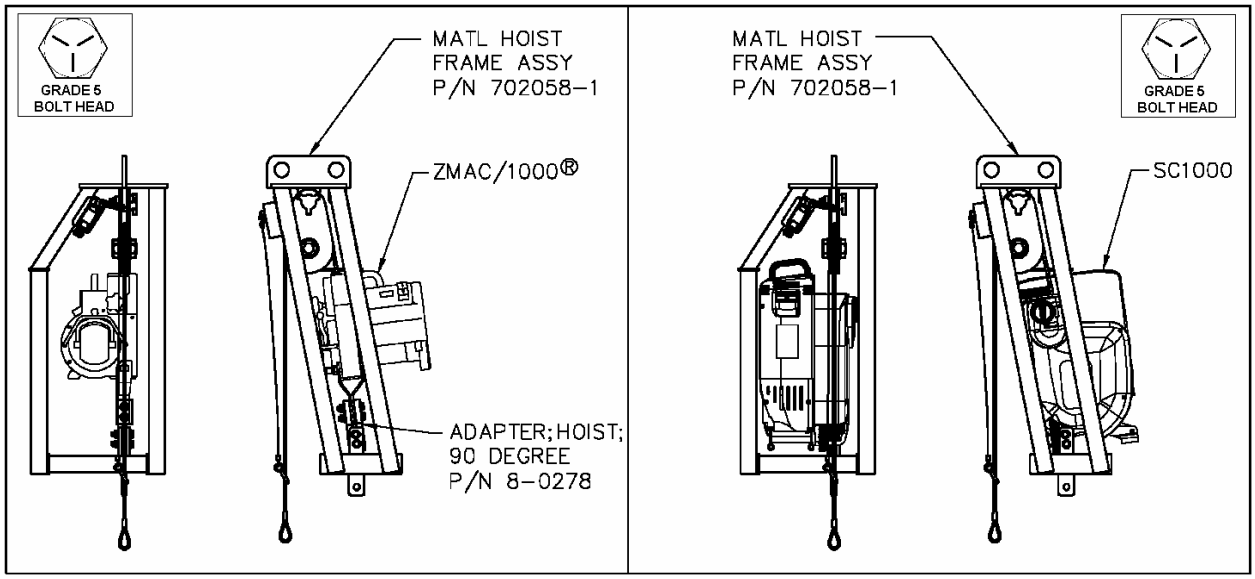


Figure 3.

Reeving the Wire Rope

1. The wire rope shall be reeved through the tailboard block on the material hoist frame. If an overhaul ball or other rigging hardware is located on the end of the rope, the tailboard block can be unbolted and opened allowing the wire rope to breach load. Refer to figure 4.

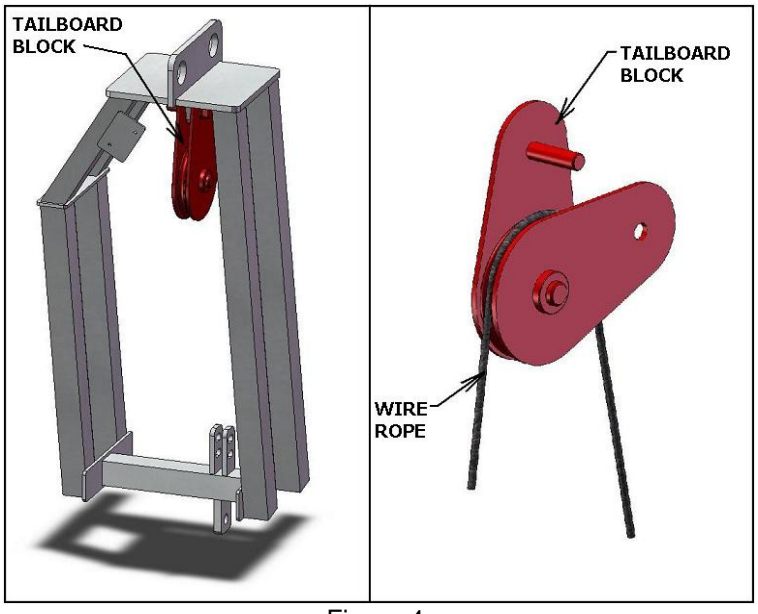


Figure 4.

2. The wire rope must have a minimum breaking strength of 8 times the load rating of the hoist. For a load rating of 1,000 lb, the wire rope must have a minimum breaking strength of 8,000 lb.

Connecting the Upper Limit Switch

1. Connect the upper limit switch sensor on the material hoist frame by capturing the wire rope with the shackle on the end of the upper limit switch detection line. If the load is raised high enough to slide the shackle upward, the upward direction of the hoist will be disabled. Refer to figure 5 for a representative illustration showing the configuration with the SC1000.

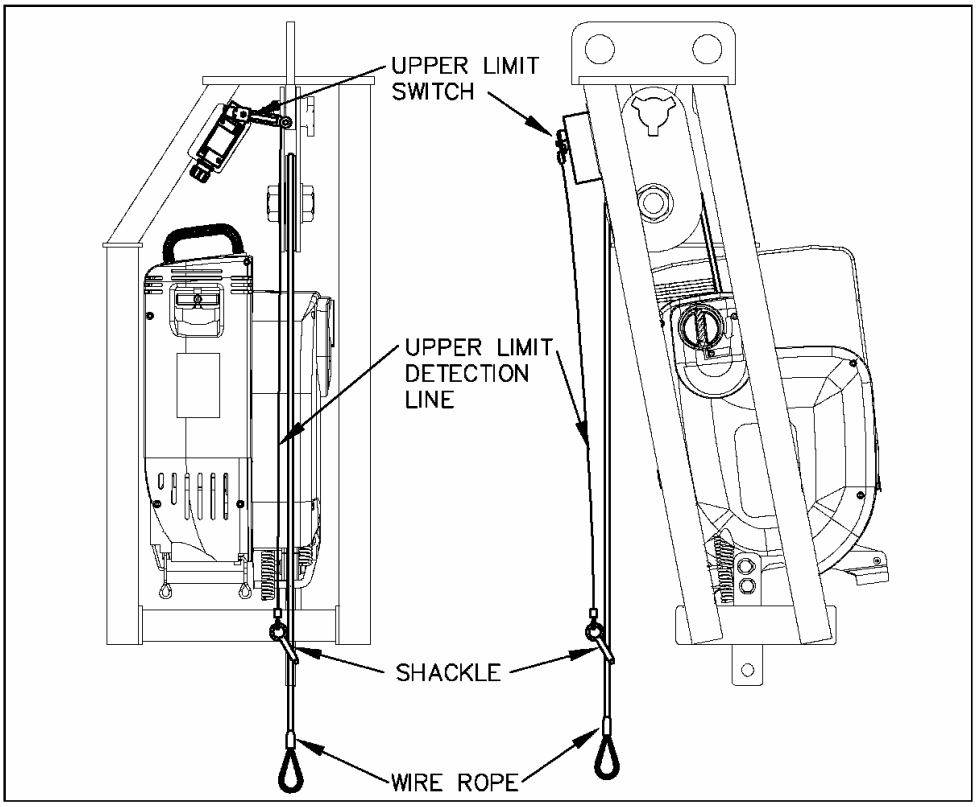


Figure 5.

Single Line Configuration

1. The material hoist frame can be used in a single line configuration to lift a maximum load of 1000 lb at the rated speed of the hoist. This configuration is used with the wire rope travels from the hoist over the sheave block and down to the connected load.

Double Line Configuration

1. To lift larger loads, the line can be doubled using a tailboard block allowing the lifting of a maximum of 2000 lb at one-half the rated speed of the hoist. Single line loads travel at 35 fpm. Doubled line loads travel at 17 fpm. Refer to figure 6 illustrating both the single and double line configuration. The doubling line feature requires additional consideration to ensure the support structure is

adequate to support the imposed loads. Contact your Spider professional for information regarding the double line setup.

DANGER

The rigging must be able to support 4 times the load being lifted. If using a single line configuration to lift a maximum of 1000 lb, the rigging must be able to support without failure a load of 4000 lb. If the double line configuration is being used to lift a maximum load of 2000 lb, the rigging must be able to support without failure a load of 8000 lb.

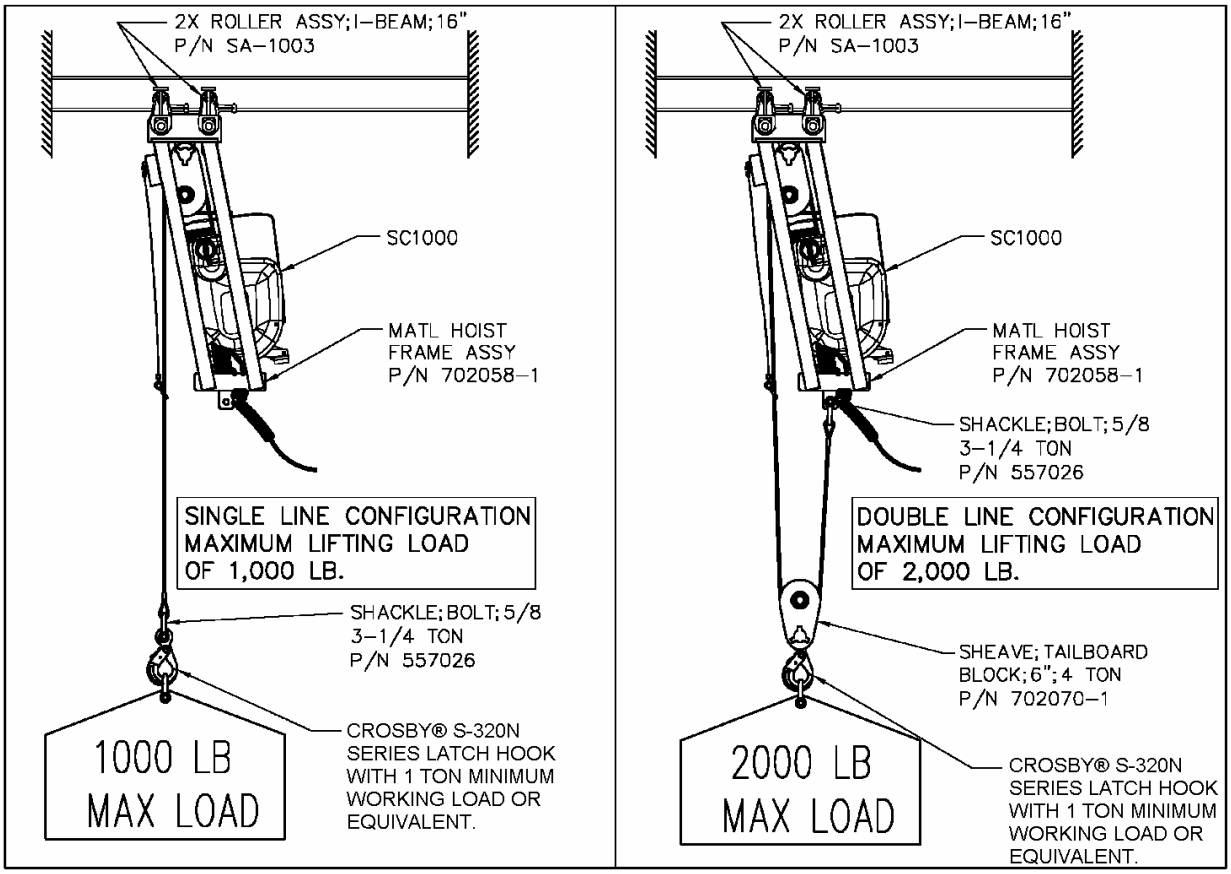


Figure 6.

Using a Tagline to Trolley

1. When the material hoist frame is being attached using beam rollers or another approved trolley system, a tagline can be attached to the tagline tab on the material hoist frame. This allows the frame to be pulled and trolley along the beam to move the load. Refer to figure 7.

2. The tagline should be a minimum or ¼" diameter abrasion resistant line with a minimum working load of 150 lb. The tagline may be tied off to a structurally adequate point to hold the frame in position. The tie-off point for the tagline shall be determined by a competent person.

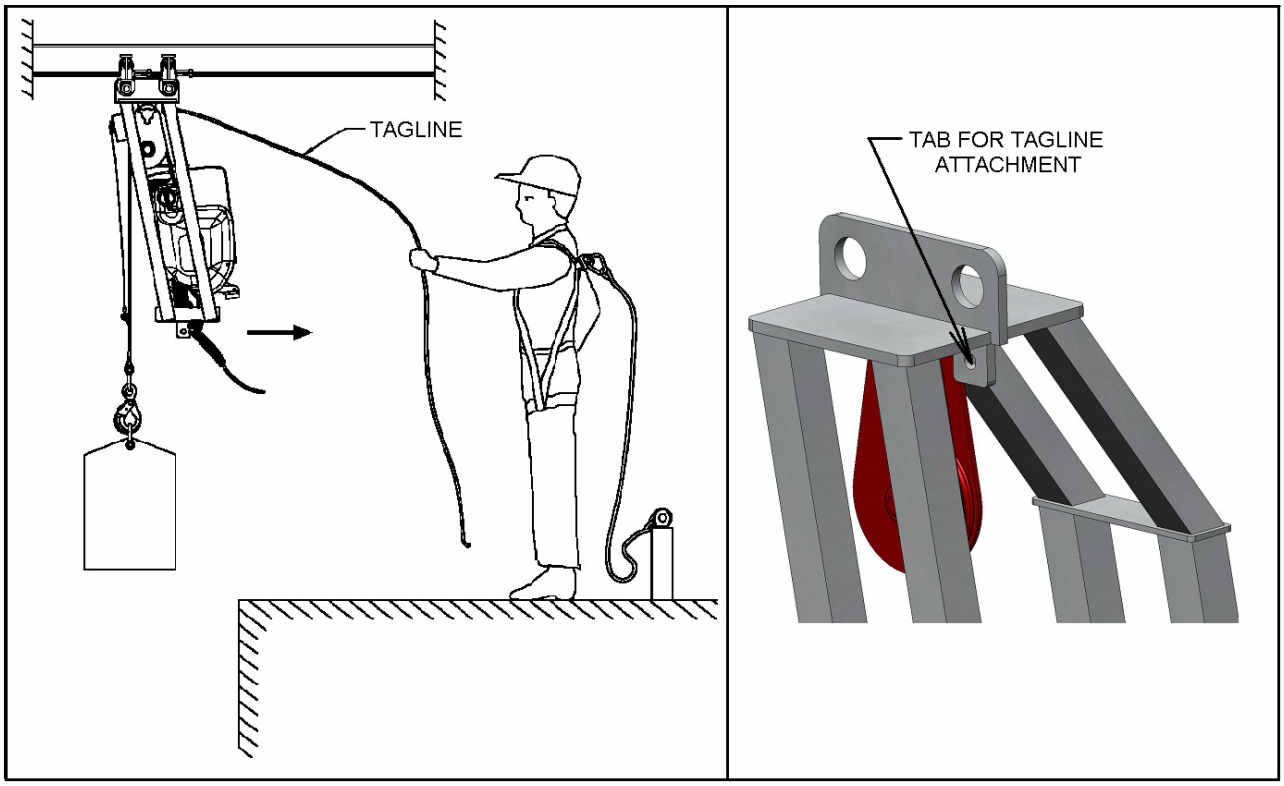


Figure 7.

Electrical Set

1. The electrical set is composed of a junction box with 5 cord leads; a main power male plug, a main power female plug, a hoist control female plug, a hoist control male plug, and the upper limit female plug. The junction box also has an emergency stop and a power-loss reset switch. The emergency stop switch cuts all power to the hoist when pressed. The power-loss reset switch cuts power to the hoist in the event source power is lost. The power-loss reset switch must be manually reset once source power is restored to return power to the hoist. Refer to figure 8 for the illustration of the material hoist electrical kit.

2. The remote control to be used with the material hoist electrical kit is the remote control part number 700786-XX, where XX denotes the length of the remote cable in feet. The remote is available in lengths up to 60ft, however the operator must be within reach of the emergency stop on the electrical box while operating the hoist. When using the ZMAC/1000® hoist the ZMAC/1000® remote adapter (700908-1) shall be used. When using the SC1000 hoist, the SC1000 remote adapter (701602-1) shall be used. The raising and lowering of the load is accomplished by using the up/down controls on the remote control. Refer to figure 9.

⚠WARNING

The emergency stop on the electrical set junction box must be within reach of the hoist operator when the hoist is in use.

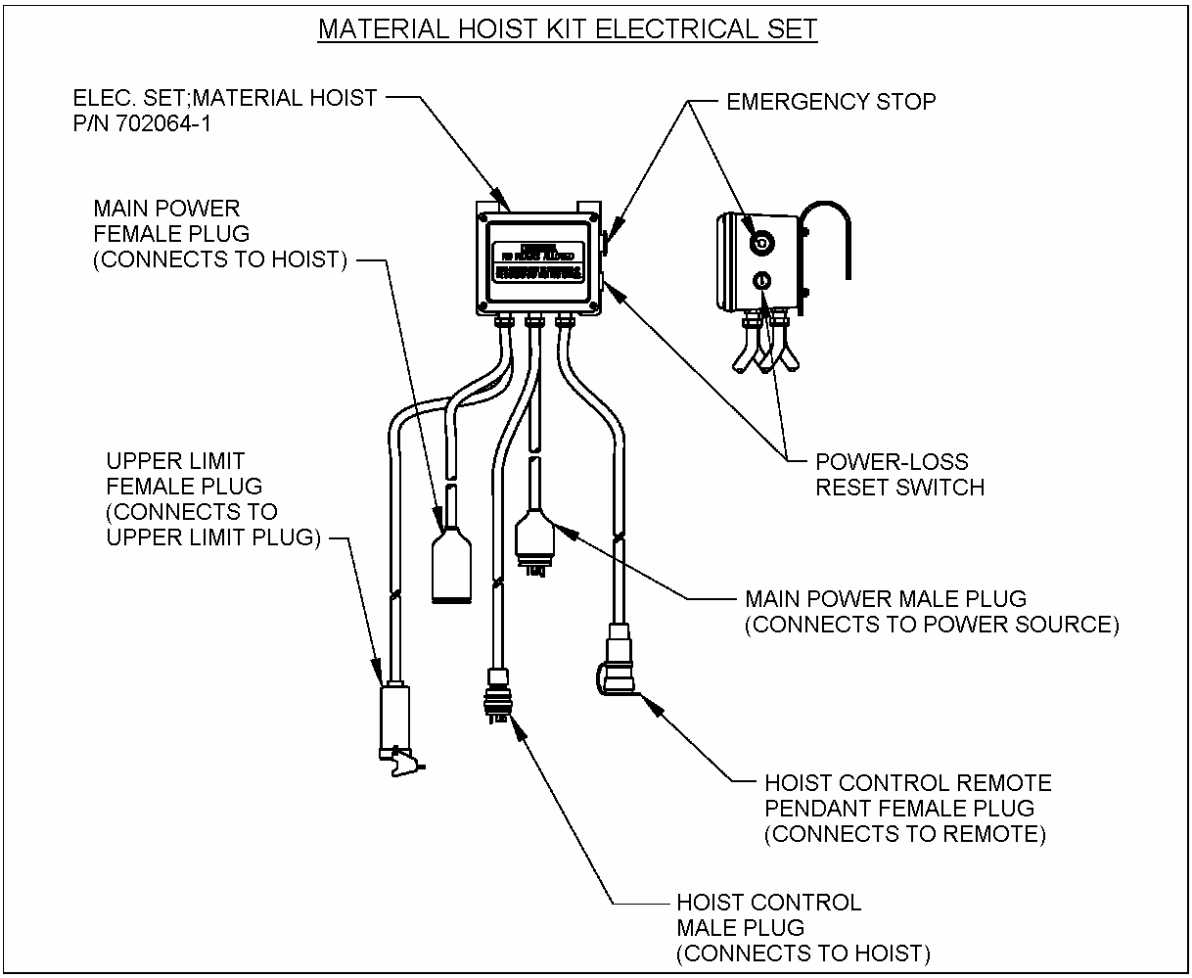


Figure 8.

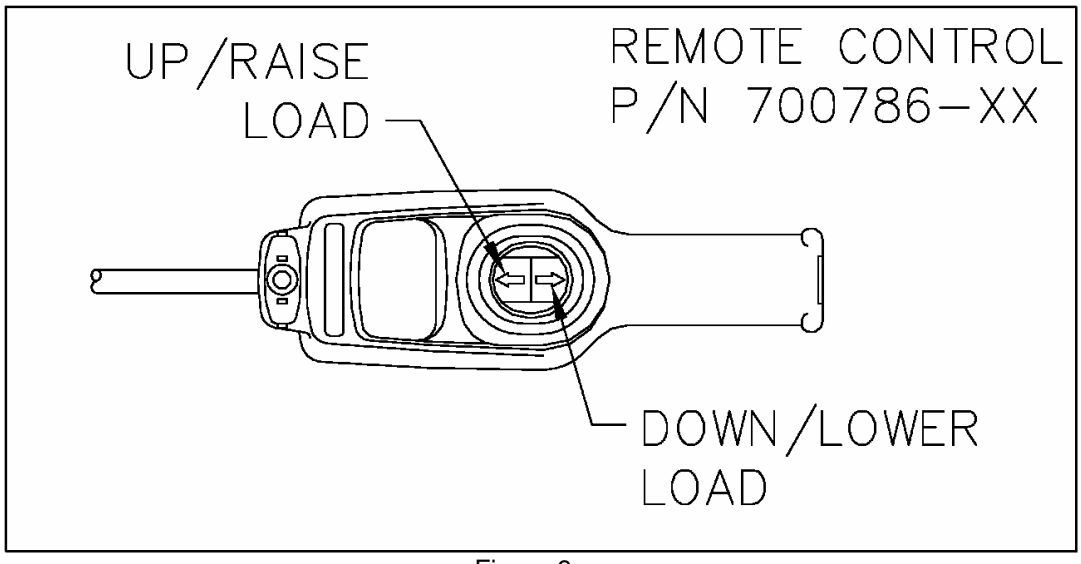


Figure 9.

3. If the load is raised high enough to trip the upper limit switch the hoist will be disabled in the up direction, but the hoist can be operated in the down direction.

4. If there is a loss of main electrical power, power will be cut off from the hoist until the power-loss reset switch is reset. This prevents the hoist from inadvertently going into operation when source power is restored after a power loss. The emergency stop cuts off all power to the hoist until the emergency stop is reset.

5. The electrical set junction box shall be hung off the ground to avoid inadvertent damage. The junction box is equipped with hanging hooks to suspend the junction box from an appropriate fixture.

Wire Rope Handling

1. The wire rope that is exiting from hoist (trailing wire rope) shall **not** be allowed to drop over the edge where the load is being raised or lowered. The trailing wire rope can become entangled with the load wire rope and cause damage to the rope, hoist, or a shift in the load.

2. The trailing rope shall be observed by a competent person to ensure it gathers without becoming entangled with any obstructions or itself. Using a large open bucket or barrel container to coil the rope into may be helpful in ensuring the trailing rope gathers properly.

3. To aid in directing the trailing wire rope, the material hoist frame is equipped with a wire rope guide. The wire rope guide is attached to the material hoist frame at the hoist connection point. The trailing wire rope shall be directed into the guide spring and then the rope will exit the guide spring in the direction desired. Refer to figure 10 for the illustration of the material hoist wire rope guide.

4. The length of the wire rope to be used shall be a minimum of 15ft longer than the height of the lift. A loop shall be put in the bitter end of the wire rope and fixed with a fist grip. This loop prevents the bitter end of the wire rope from inadvertently running out through the hoist.

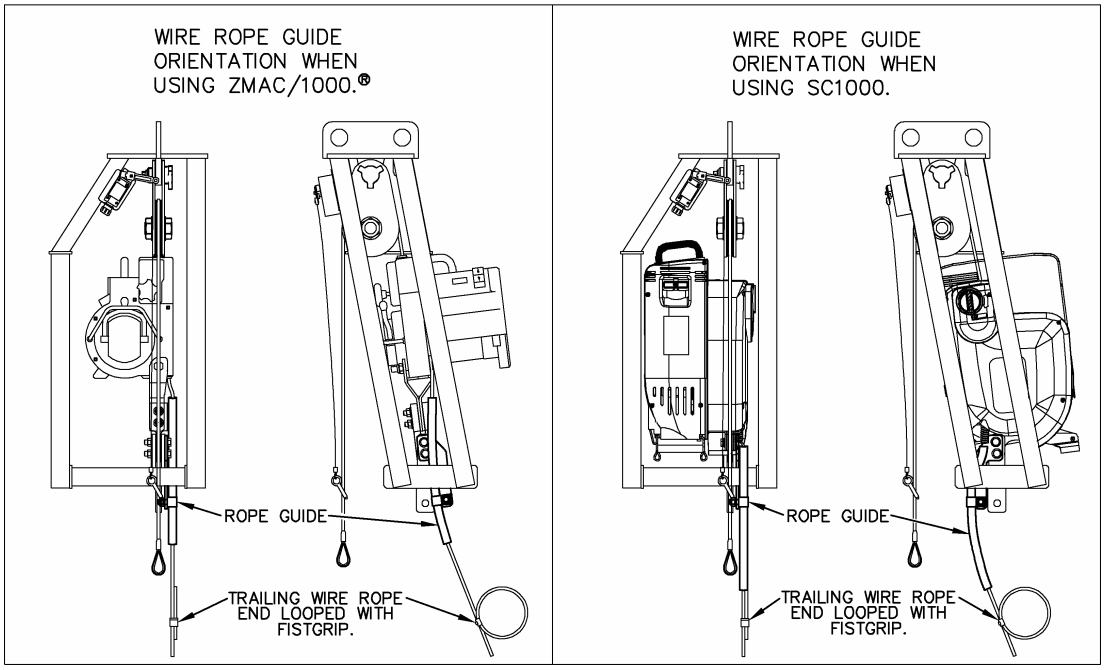


Figure 10.

HOIST OPERATOR'S DUTIES AND RESPONSIBILITIES

PRIOR TO BEGINNING THE HOISTING OPERATIONS THE HOIST OPERATOR SHALL COMPLETE THE SAFETY AND SURVEY CHECKLIST LOCATED AT THE BACK OF THIS MANUAL

Inspection

Daily inspections should be performed by the hoist operator at the start of each shift, or at the time the hoist is first used during each shift. Refer to the HOIST INSPECTIONS section of this manual for additional information on the daily inspections. The hoist operator **shall not** perform frequent or periodic inspections, or perform maintenance on a hoist unless the operator has been trained to perform such inspections or maintenance, and is designated by the hoist owner/user to perform such inspections or maintenance. The hoist owner/user is defined as the owner of the hoist or the hoist renter, not the manufacturer or rental company providing the hoist.

HOIST OPERATORS AS WELL AS THE SUPPORT PERSONNEL INVOLVED IN THE LIFTING APPLICATION SHALL:

Be required to read the operational section of the manual furnished with the hoist.

Be required to read the warnings in the manual furnished with the hoist.

Be required to read the instructions and warning labels on the hoist.

Be required to perform all daily inspection and testing procedures described in the manual furnished with the hoist.

Be required to read the operating section of ASME B30.16

Be required to be familiar with the hoist controls before being authorized to operate the hoist.

Be trained in proper rigging procedures to be followed in the attachment of loads to the hoist load hook.

Be trained and be familiar with any below-the-hook devices that may be used in lifting of loads.

Be trained to be aware of potential malfunctions of the hoist that may require adjustment or repair.

Be instructed to stop operation if malfunctions occur, and to immediately advise their supervisor so corrective action can be taken.

HOIST OPERATORS AS WELL AS THE SUPPORT PERSONNEL INVOLVED IN THE LIFTING APPLICATION SHALL:

Have normal depth perception, field of vision, reaction time, manual dexterity, and coordination for the work to be performed.

NOT be subject to seizures, loss of physical control, physical defects, or emotional instability that could result in actions of the operator being a hazard to the operator or others.

NOT operate a hoist when under the influence of alcohol or drugs.

NOT operate a hoist when under the influence of medication that could result in actions of the operator being a hazard to the operator or others.

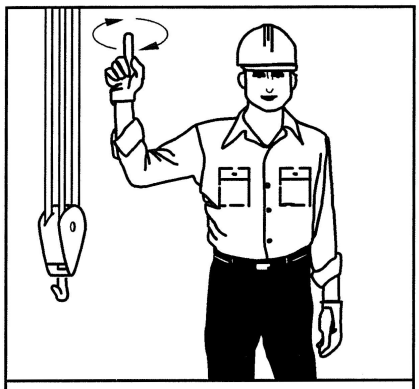
Hoists are intended only for strictly vertical lifting service of freely suspended, unguided loads. Do not use a hoist to lift loads that are not lifted vertically, loads that are not freely-suspended, or loads that are guided. If such conditions exist, the operator should halt work immediately and contact the supervisor for instructions.

Do not lift personnel.
Do not lift loads over people.

Powered hoists must be equipped with an upper limit device that will prevent the hoist load block from exceeding the upper limit of travel. Depending on the shape or size of the load being lifted, it may be possible for some part of the load to come into contact with some part of the hoist, trolley, crane, or building structure before the load block reaches the upper limit of travel. The operator must consider this possibility when it is required to lift the load to a level of close proximity to the hoist.

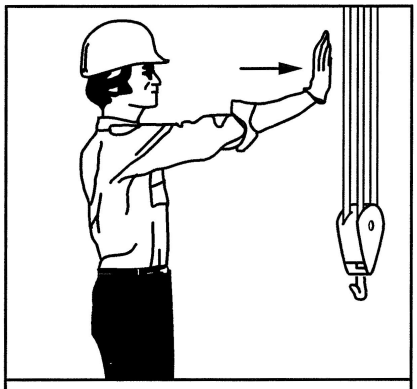
The upper limit switch is an emergency device only. It shall not be used as an operational means to stop travel during normal operations.

Operation of the upper limit switch, on powered hoists, is one of the items the hoist operator must check during the daily inspection to be performed at the start of each shift, or at the time the hoist is first used during each shift.

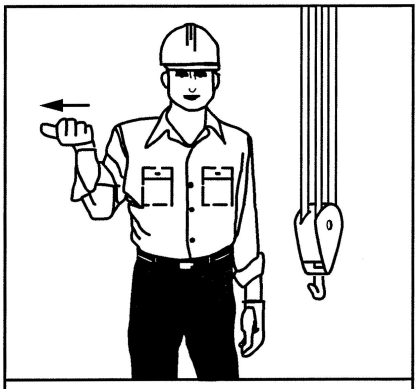


HOIST. With forearm vertical, forefinger pointing up, move hand in small horizontal circles.

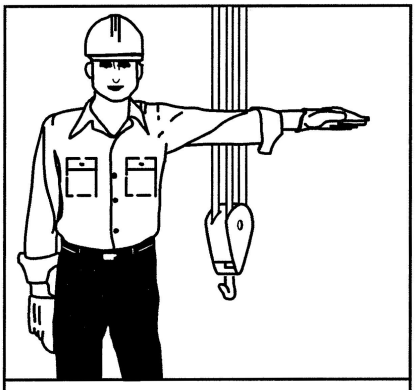
LOWER. With arm extended downward, forefinger pointing down, move hand in small horizontal circles.



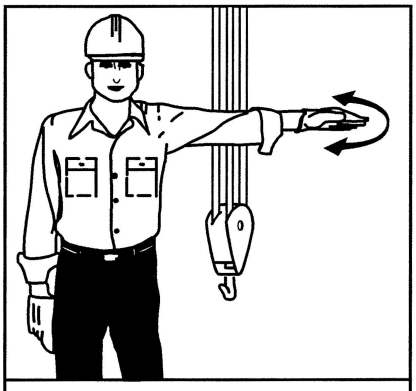
TRAVEL (rail mount or trolley). Arm extended forward, hand opened and slightly raised, make pushing motion in direction of travel.



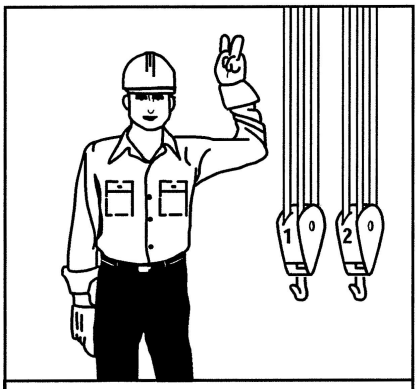
TROLLEY TRAVEL. Palm up, fingers closed, thumb pointing in direction of motion, jerk hand horizontally.



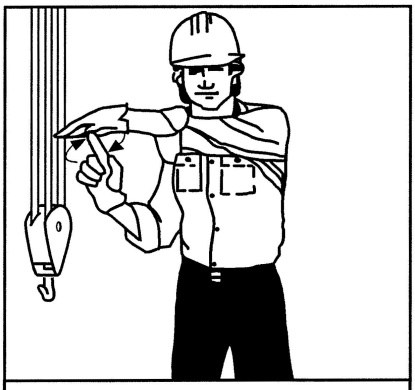
STOP. Arm extended, palm down, hold position rigidly.



EMERGENCY STOP. Arm extended, palm down, move hand rapidly right and left.



MULTIPLE TROLLEYS. Hold up one finger for block marked "1" and two fingers for block marked "2." Regular signals follow.



MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless in front of hand giving the signal. (HOIST SLOWLY AS SHOWN IN EXAMPLE.)

Standard Hand Signals

HOIST INSPECTIONS

In accordance with the requirements of ASME B30.16, the hoist operator should perform daily (prestart) inspections at the start of each shift, or at the time the hoist is first used during each shift. The daily inspection is a visual and audible examination of the hoist. Records of the daily inspection are not required except as required by the hoist owner/user. Daily inspection items that should be performed by the operator at the start of each shift, or at the time the hoist is first used during each shift, include the following outlined for electric powered hoists.

INSPECTION ITEM	DESCRIPTION OF INSPECTION CHECK POINTS
Tagged Hoist	Check that hoist is not tagged with an out-of-order sign.
Control Devices	Check that all travel motions agree with control device markings. When checking hoist travel motion, always use the lifting or up control first.
Brakes	Check that all travel motions do not have excessive drift and that stopping distances are normal.
Hook	Check for damage, cracks, nicks, gouges, deformation of the throat opening, wear on saddle or load bearing point, and twist.
Hook Latch	Check that hook latch, if provided, is not missing and that it operates properly.
Wire Rope	Check for broken wires, broken strands, kinks, and any deformation or damage to the rope structure.
Reeving	Check that the wire rope is properly reeved, that wire rope is not kinked or twisted, and that the wire rope parts are not twisted about each other.
Limit Devices	Check that primary upper limit device stops lifting motion of the hoist load block at the upper limit of travel.
Oil Leakage	Check for any sign of oil or grease leakage on the hoist and on the floor area beneath the hoist.
Unusual Sounds	Check for any unusual sounds from the hoist and hoist mechanism while operating the hoist.
Warning and Safety Labels	Check that warning and other safety labels are not missing and that they are legible.

Refer to the manual furnished by the manufacturer of the hoist for additional daily inspection requirements.

WARNING

If any damage or malfunctions are noted by the daily inspection items, the operator shall not operate the hoist, and shall immediately advise the supervisor so corrective action can be taken.

Hoist operators should be aware of malfunctions of the equipment that could occur during operation, and should immediately stop operation if such malfunctions occur, and should immediately advise the supervisor so corrective action can be taken.

If corrective action has not been completed by the end of the shift, the operator shall advise the operator or operators on the next shift that corrective action is required on the hoist and verify that the hoist is tagged with an out-of-order sign.

It is required to perform frequent and periodic inspections of the hoist in accordance with the requirements of the ASME B30.16 standard and as outlined in the manual furnished by the hoist manufacturer.

Frequent and periodic inspections are to be performed by trained, experienced, and competent personnel.

WARNING

Hoist operators should read the operation section of the manual furnished by the manufacturer of the hoist and the warnings contained in that manual; instruction and warning labels on the hoist; and the operation section of ASME B30.16. Hoist operators are to be familiar with the hoist, and hoist controls before being authorized to operate the hoist.

Hoist operators are to be familiar with proper rigging procedures to be followed in the attachment of loads to the hoist hook, refer to ASME B30.16 for additional information regarding hoist hooks.

Hoist operators must be aware of potential malfunctions of the equipment that require adjustment or repair, and stop the operation if such malfunctions occur, and immediately advise their supervisor so corrective action can be taken.

Hoist operators are not to operate a hoist when under the influence of alcohol or drugs; or under the influence of medication that could result in actions by the operator which may cause a hazard to the operator or others.

DANGER

Operator's shall not lift personnel or move loads over personnel.

HOIST OPERATIONS

Hoist operations shall be performed in accordance with OSHA1926.552 and ANSI/ASSE A10.5

The operator SHALL NOT leave the hoist controls while the load is suspended or the hoist is engaged.

The operator SHALL have an unobstructed view of the load being lifted to confirm the load is traveling as expected, is balanced, and the path is free of obstructions. If the operator's view of the load is obstructed the operator SHALL have an unobstructed view of a competent spotter who has an unobstructed view of the load to confirm the load is traveling as expected, is balanced, and the path is free of obstructions. The spotter must be within 50 feet of the operator to use hand signal communication, if the spotter is greater than 50 feet away from the operator a closed-circuit electrical communication system shall be used.

When the lifting height does not exceed 50 feet hand signals may be used between the operator of hoist and the spotters on the level from which the load is being moved and the level to which the load is being moved. If the height exceeds 50 feet a closed-circuit electrical communication system shall be used for communication.

BEFORE EACH SHIFT
OR
BEFORE THE FIRST TIME THE HOIST IS TO BE USED EACH SHIFT

THE OPERATOR:

SHALL	wear personal fall arrest equipment appropriate to the intended application as described in OSHA 1926 Subpart M.
SHALL	perform a daily inspection. Refer to the HOIST INSPECTIONS section of this manual.
SHALL	visually inspect wire rope for broken wires, broken strands, kinks, and any type of deformation or damage of the rope structure.
SHALL	visually inspect hooks for nicks, gouges, deformation of the throat opening, wear on saddle or load bearing point, and twisting.
SHALL	visually inspect hook latches for proper operation or damage that does not allow proper operation.
SHALL	test operation of the primary upper limit device of the hoisting motion.
SHALL	report if warning label or labels are missing or illegible to the supervisor.

SHALL report any damage or malfunctions to the supervisor.

SHALL NOT operate hoist if any damage or malfunctions exist.

SHALL NOT operate hoist if it is tagged with an out-of-order sign.

BEFORE OPERATING THE HOIST AND APPLYING THE LOAD

THE OPERATOR:

SHALL be familiar with all operating controls of the hoist.

SHALL be familiar with the OPERATION INSTRUCTIONS section of the manual furnished by the manufacturer of the hoist; instruction and WARNING labels on the hoist; and the OPERATION section of ASME B30.16

SHALL be familiar with the operations to be performed.

SHALL report any damage or malfunctions to the supervisor.

SHALL center hoist over load.

SHALL attach the load to the hoist load hook by suitable means such as slings or lifting devices.

SHALL verify that the size of the attachment part of the sling or other lifting device to be used is compatible with the size of the hoist load hook.

SHALL verify that the capacity of the attachment part of the sling or other lifting device to be used is compatible with the capacity of the hoist load hook and the weight of the load to be lifted.

SHALL only attach loads to the hoist load hook that do not exceed the rated load capacity of the hoist.

SHALL verify that the attachment part of the sling or other lifting device is properly seated in the base, bowl, or saddle of the hoist load hook.

SHALL verify that the hook latch operates properly and that the hook latch properly bridges and closes the hook throat opening.

SHALL verify that the latch of the hoist hook will not support any part of the load.

SHALL verify that the load or any part of the load will not be applied to and/or not supported by the tip or point of the hook.

SHALL verify that load will be properly balanced when it is lifted.

SHALL verify that side loads will not be applied to the hoist when the load is lifted.

SHALL verify that hoist wire rope is not kinked or twisted, and that wire rope parts are not twisted about each other.

SHALL verify that hoist wire rope is properly reeved.

SHALL notify personnel in the area that a load will be lifted and verify that all personnel are clear of the load.

SHALL verify that when the load is lifted, it will clear all material, machinery, or other obstructions in the area.

SHALL NOT operate hoist if any damage or malfunctions exist.

SHALL NOT operate hoist if it is tagged with an out-of-order sign.

SHALL NOT operate a hook mounted hoist when the hoist is restricted from forming straight line from top hook to load hook in the direction of loading.

SHALL NOT use the hoist wire rope as a sling to wrap around the load.

WHILE OPERATING THE HOIST AND MOVING THE LOAD

THE OPERATOR:

SHALL know hand signals used for hoist operations as a person giving signals, and accept signals of only persons authorized to give hand signals.

SHALL verify that the load and hoist will clear all obstacles before moving or rotating the load.

SHALL slowly inch the load hook into engagement with the load to eliminate wire rope and minimize impact loading of the hoist.

SHALL avoid unnecessary inching and quick reversals of direction.

SHALL only lift the load a few inches to verify that the load is properly balanced before continuing with the lift, and also ensure the braking system is functioning properly.

SHALL avoid swinging of the load or hoist load hook when the trolley or hoist is traveling.

SHALL avoid sharp contact between trolleys or between trolley end stops(if applicable).

SHALL NOT lower the load beyond the point where less than 15ft remain on the trailing (exit) side of the traction hoist.

SHALL NOT move loads over personnel.

SHALL NOT engage in any activity that will divert the attention of the operator.

SHALL NOT lift, lower, or transport a load with the hoist until the operator and all other personnel are clear of the load and the path of the load.

SHALL NOT lift, lower, or transport personnel by means of the hoist, trolley, hoist hook, or load.

SHALL NOT use hoist limit devices as a normal means of stopping the hoist.

PARKING THE LOAD

THE OPERATOR:

SHALL verify that the load will clear all obstacles before lowering the load.

SHALL place blocks under the load before landing if slings or other lifting devices must be removed from under the landed load. This prevents the load from pinning the slings or other lifting devices under the load.

SHALL exercise care when removing a sling from under a landed and blocked load.

SHALL position the hoist load block or load hook at its upper most position for storage when the hoist is not in use.

SHALL NOT lower a load with the hoist until the operator and all other personnel are clear of the load and the path of the load.

SHALL NOT leave a suspended load unattended unless specific precautions to prevent the load from inadvertent lowering or swinging have been instituted and are in place.

GENERAL

THE OPERATOR:

SHALL NOT operate a hoist that is damaged or has any actual or suspected mechanical or electrical malfunction.

SHALL NOT attempt to lengthen wire rope or repair damaged wire rope.

SHALL NOT use the wire rope or any part of the hoist, block, or hook as a ground for welding.

SHALL NOT allow a welding electrode to be touched to the wire rope, load hook, or any portion of the suspension or lifting system.

SHALL NOT remove or obscure any instructions, warnings or warning labels on the hoist.

SHALL NOT walk under a suspended load or allow other personnel to walk under a suspended load.

SHALL NOT perform or allow any other person to perform ANY work on a suspended load that requires a worker to be positioned under the suspended load.

Do not walk under a suspended load.

Do not perform any work on a suspended load that requires a worker to be positioned under the suspended load.

If it is essential that a worker be positioned under a suspended load to perform work on the suspended load; such work shall not be started or performed until other auxiliary supporting means are placed under the suspended load. failure to use other auxiliary supporting means could result in serious bodily injury or death, and/or property damage.

On electric powered hoists, hazardous voltages are present in the control box and other electrical components.

REFERENCE DOCUMENTS

Users/Operators shall be familiar with the following documents:

- **The material hoists section of OSHA 1926.552 – MATERIAL HOISTS, PERSONNEL HOISTS, AND ELEVATORS.**
- **ANSI/ASSE A10.5 – SAFETY REQUIREMENTS FOR MATERIAL HOISTS**
- **ANSI/ASME B30.16 - SAFETY STANDARD FOR OVERHEAD HOISTS (UNDERHUNG)**
- **ALL LOCAL OSHA REGULATIONS AND LOCAL CITY, COUNTY, AND STATE REGULATIONS THAT APPLY TO MATERIAL HOIST OPERATIONS.**
- **ZMAC/1000® TRACTION HOIST RIGGING & OPERATIONS MANUAL (PART NUMBER M-604).**
- **SC1000 TRACTION HOIST OPERATIONS MANUAL (PART NUMBER 9961).**
- **OUTRIGGER BEAM SUPPORT FRAME ASSEMBLY INSTRUCTIONS (PART NUMBER P-00248).**

OSHA documents can be found at www.osha.gov

ANSI documents can be found at webstore.ansi.org

RECOMMENDED PRACTICES FOR ELECTRIC HOIST OPERATION.

Because the manufacturer has no direct control over the hoist and its operation, conformance with good safety practice is the responsibility of the user and operating personnel. ANSI ASME B30.16 has been used as a guide in preparing this list of SHALL's and SHALL NOT's. Ask your supervisor for a copy. Each is identified according to ANSI NEMA Z535.4 with either the signal word CAUTION or WARNING to indicate the degree of seriousness.

⚠ DANGER:

Improper operation of a hoist can create a potentially hazardous situation which, if not avoided, could result in death or serious injury. To avoid such a potentially hazardous situation, the operator shall:

1. NOT operate a damaged, malfunctioning, or unusually performing hoist.
2. NOT operate the hoist until you have thoroughly read and understood the manufacturer's Operating and Maintenance Instructions or Manuals.
3. NOT operate a hoist which has been modified without the manufacturer's approval or without certification that it is in conformity with ANSI/ASME B30 volumes.
4. NOT lift more than the rated load for the hoist.
5. NOT use hoist with twisted, kinked, damaged, or worn load chain or wire rope.
6. NOT use the hoist to lift, support, or transport people.
7. NOT lift loads over people.
8. NOT operate a hoist unless all persons are and remain clear of the supported load.
9. NOT operate unless load is centered under hoist.
10. NOT attempt to lengthen the load wire rope of chain or repair damaged load wire rope or chain.
11. Protect the hoist's load wire rope or chain from weld splatter or other damaging contaminants.
12. NOT operate hoist when it is restricted from forming a straight line from hook to hook in the direction of loading.
13. NOT use load wire rope or chain as a sling, or wrap load wire rope or chain around load.
14. NOT apply the load to the tip of the hook or to the hook latch.
15. NOT apply load unless load chain is properly seated in the wheel(s) or sprocket(s) or wire rope is properly seated in its groove(s).
16. NOT apply load if bearing prevents equal loading on all load supporting ropes or chains.
17. NOT operate beyond the limits of the load wire rope or chain travel.
18. NOT leave load supported by the hoist unattended unless specific precautions have been taken.
19. NOT allow the load wire rope, chain or hook to be used as an electrical or welding ground.
20. NOT allow the load wire rope, chain or hook to be touched by a live welding electrode.
21. NOT remove or obscure the warnings on the hoist.
22. NOT operate a hoist on which the safety placards or decals are missing or illegible.
23. NOT operate a hoist unless it has been securely attached to a suitable support.
24. NOT operate a hoist unless load slings or other approved single attachments are properly sized and seated in the hook saddle.
25. Take up slack carefully – make sure load is balanced and load holding action is secure before continuing.
26. Shut down a hoist that malfunctions or performs unusually and report such malfunction.
27. Make sure hoist limit switches function properly.
28. Warn personnel of an approaching load.

⚠ CAUTION:

Improper operation of a hoist can create a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. To avoid such a potentially hazardous situation the operator shall:

1. Maintain a firm footing or be otherwise secured when operating the hoist.
2. Check brake function by tensioning the hoist prior to each lift operation.
3. Use hook latches. Latches are to retain slings, chains, etc. under slack conditions only.
4. Make sure the hook latches are closed and not supporting any parts of the load.
5. Make sure the load is free to move and will clear all obstructions.
6. Avoid swinging the load or hook.
7. Make sure hook travel is in the same direction as shown on the controls.
8. Inspect the hoist regularly, replace damaged or worn parts, and keep appropriate records of maintenance.
9. Use the hoist manufacturer's recommended parts when repairing the unit.
10. Lubricate load wire rope or chain per hoist manufacturer's recommendations.
11. NOT use the hoist load limiting or warning device to measure load.
12. NOT use limit switches as routine operating stops unless allowed by manufacturer. They are emergency devices only.
13. NOT allow your attention to be diverted from operating the hoist.
14. NOT allow the hoist to be subjected to sharp contact with other hoists, structures, or objects through misuse.
15. NOT adjust or repair the hoist unless qualified to perform such adjustments or repairs.

SAFETY AND SURVEY CHECKLIST

GENERAL
- □ Set up meets all federal, state, and local safety codes and regulations.
- □ Operator and all personnel involved in the hoisting operation have read and completely understand this manual.
- □ Operator fully understands the operation and use of the hoist.
- □ Operator and all personnel involved in the hoisting operation are capable of performing all of their duties and responsibilities required.
- □ Operator and all personnel involved in the hoisting operation have a means of communicating while their duties are performed.
- □ Operator and all personnel involved in the hoisting operation are not under the influence of medicine, drugs, or alcohol.
- □ All personnel involved in the hoisting operation are wearing the appropriate personal fall arrest or restraint equipment as required in OSHA 1926 Subpart M.
- □ Operator is not operating the hoist alone.
- □ Work area around the hoist operator is free from obstructions, clutter, and trip hazards.
- □ Load lift path is free from obstructions.
- □ Both the upper and lower load landing area is clear and open.
- □ The load is allowed to hang with the wire rope straight directly below the hoist.

HOIST
- □ Hoist labels are present and legible and have not been modified in any way.
- □ Ensure hoist is undamaged and operating correctly and has not been modified in any way.
- □ Hoist frame is not bent, cracked, or otherwise damaged.
- □ Tailboard bock is undamaged and installed properly.
- □ Wire rope guide is undamaged and installed properly.
- □ Hoist is installed in the frame correctly.

WIRE ROPE, HOOKS, and CLASPS
- □ Wire rope is not twisted, kinked, frayed, or otherwise damaged.
- □ The minimum length of rope use is equal to the height of the lift plus 15 feet and any excess wire rope is stored at the roof level.
- □ Hooks are not deformed or otherwise damaged.
- □ Hook spring latch is properly installed and is not bent or damaged.
- □ The bitter end of the wire rope is looped and fixed with a fist grip.

ELECTRICAL POWER SOURCE AND CABLES
- □ Voltage from power source is correct and properly grounded. Refer to hoist labels for correct voltage.
- □ Voltage from power should not vary more than the percentage allowed per the hoist motor labels.
- □ Verify the upper limit switch operates correctly.
- □ Refer to Hoist Operators manual for specifications for power supply cables. Use a booster transformer if needed to insure running voltage at the hoist is within the stated operating range of the hoist.
- □ All power or control cables are in good condition and are not cracked or damaged.
- □ Remote control up/down buttons are operating properly.
- □ Electrical set emergency stop and power-loss reset switch are operating properly.
- □ Verify operating voltage before installation.

RIGGING
- □ All fasteners/fittings/fist grips are tightened appropriately, are secure, and are inspected under load to verify they are properly secured.
- □ Structural members are in good condition and show no sign of corrosion.
- □ Rigging structure is properly assembled, braced, and tied back(if applicable).
- □ Rigging is properly installed with correct amount of counterweight.
- □ Rigging is level in all directions.
- □ If using beam rollers or trolleys end stops are properly installed.