



Maxial Track Hoist

www.betamaxhoist.com 1-800-233-5112



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Chapter 1 Introduction and General Description

Thank you for choosing the Maxial Track Hoist.

The intended purpose of this manual is to inform, guide, and educate the owner/operator on the safe operation and maintenance of the Maxial Track Hoist. This manual applies to two models of Maxial Track Hoist (standard and narrow) and will note model-specific topics where applicable.

All Maxial Track Hoists will meet or exceed ANSI and OSHA specifications.

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 \checkmark Introduction and General Description

1.1 Description



Figure 1.1 Maxial Track Hoist



In 1990, Beta Max introduced a portable track hoist system or ladder hoist, as it is sometimes called because of its ladder-like appearance. This product is being employed by scaffolding companies, utilities, processing plants, and a variety of commercial companies. Applications range from boiler repair, building construction and maintenance, to temporary lifting requirements within industrial environments. The Maxial Track Hoist provides a safer and more productive way to erect and dismantle scaffolding, a more cost-effective material lifting solution on long-term construction jobs, and a flexible material handling system for a variety of interior and exterior settings.

Beta Max products provide more value and flexibility for most low-end lift applications than heavy lifting equipment, and are safer and more productive than the "human chain" manual method typically used in the erection of scaffolding. The Maxial Track Hoist requires no tools to assemble.

The track hoist is typically mounted in a vertical position when used with scaffolding. The hoist may be erected on the outside of the scaffold for easy access to the lift equipment or within the scaffolding bay to facilitate offloading of the carrier at elevated locations.



P.O. BOX 2750 MELBOURNE, FL 32902 800-233-5112 - FAX 321-768-9517 "The Profit Lifters"

/ Introduction and General Description

The Maxial Track Hoist has the following characteristics:

- Strong, lightweight 3 lb/ft (44.6 g/cm) aluminum track sections that are simple to assemble using unique components called Kwik bolts.
- Upper and lower limit switches, integrated with the winch, that automatically sense when the load reaches the top and the bottom respectively and turn the motor off.
- A mechanical safety brake on the universal carriage that stops the entire load in the unlikely event of a broken cable.
- Both mechanical and electrical overload features that prevent workers from attempting to lift more than 450 lb (204.1 kg).
- A broad range of accessories that enables the Maxial Track Hoist to improve productivity, safety, and ease of work in the following construction applications:
 - Roofing
 - General building/construction
 - Scaffold erection and dismantling
 - Tiling
 - Plastering
 - Carpentry
 - Insulation installation

DISCLAIMER - PLEASE READ BEFORE CONTINUING: Failure to follow the guidelines in this manual is the sole responsibility of the equipment end user/ operator. Beta Max, Inc. is not and will not be held responsible or liable for injury or damages resulting from the end user/operator not following the guidelines set forth in this manual.



1.2 Cautions, Warnings, and Notes

Throughout this manual, the use of WARNINGS, CAUTIONS, and NOTES will be used to identify certain areas, tasks, or conditions that require special attention. WARNINGS and CAUTIONS will always appear directly before the task or issue of concern. **Please read and understand the complete Safety chapter of this manual before attempting to operate the equipment.**

An example of a WARNING is shown below and will always appear with the same symbol wherever it is used in this manual. A WARNING indicates that personal injury or death could result if the WARNING is not followed.



WARNING

Failure to observe a safety instruction noted by WARNING could result in severe injury or death.

An example of a CAUTION is shown below and will always appear with the same symbol wherever it is used in this manual. A CAUTION indicates that personal injury or equipment damage could result if the CAUTION is not followed.



CAUTION

Failure to observe a safety instruction noted by CAUTION could result in injury or damage to the equipment.

An example of a NOTE is shown below.

NOTE: Used throughout this manual, NOTES provide useful additional data, but they are never used to communicate safety hazards.

/ Introduction and General Description

1.3 Required Repair Tools

The following list of tools will be needed to perform maintenance work on the Maxial Track Hoist. Many of the tools listed are only required by trained technicians working on the hoist.

- 1. Voltmeter
- 2. Socket Set (Metric)
- 3. Screwdrivers, Flat
- 4. Screwdrivers, Phillips
- 5. Electrical Tape
- 6. 10 Gauge Butt Splices
- 7. 14 Gauge Butt Splices
- 8. Allen Wrenches Metric Small Set
- 9. Snap-Ring Pliers



1.4 Understanding Electricity

The electricity that powers your Maxial Track Hoist is as important as the hoist itself. Electricity may seem complicated, and an easy-to-understand explanation would be helpful. The following is an attempt to help explain and simplify electricity.

Let us compare electricity to water in a way everyone can understand. Electricity is like water passing through a hose or pipe and controlled by a faucet.

The following is a list of terms and their explanations:

- CHARGE is a group of particles gathered together.
- VOLTAGE is CHARGE that flows and builds up pressure. The higher the voltage, the more charges that flow.
- AMPERAGE is the measurement of the charge.
- RESISTANCE is restricting or limiting the flow of charge.

In using the example of water in a pipe, the amount of pressure in the pipe is the equivalent to the VOLTAGE. The amount of water flowing through the pipe (volume) can be thought of as the AMPERAGE. And finally, RESISTANCE can be described as the interaction of the faucet (power supply) and the size of the hose (length and gauge of electrical cable).

The measured voltage at the electrical outlet may be 110V AC or 220V AC with nothing plugged in or just a couple of pieces of equipment running. In the context of the water pipe, if the shower is in use, the dishwasher machine is running, and the lawn sprinklers operating, then the pressure (VOLTAGE) will be less for all of the water faucets.

/ Introduction and General Description

Electrical power in American cities is not always perfect. When a couple of pieces of equipment are plugged into one circuit and drawing a high AMPERAGE, the VOLTAGE will drop. The VOLTAGE (pressure) will not always remain constant, it will decrease. How much the voltage drops depends on the electric power company, specific wiring to the job site, and the length and type of extension power cable (hose size) being used.

What about the faucet (RESISTANCE)? If the faucet is rusted, corroded, undersized, or located a long distance from the source, the water pressure (VOLTAGE) will not be as strong as desired. Likewise, with electricity, if the electrical connections are corroded, the electrical extension cable is undersized or too long, or any combination of these circumstances exist, then the VOLTAGE at the hoist may be too low to lift the load, and the hoist could become damaged.

Beta Max electrical hoists are high energy and can lift large loads at high speeds, which require a lot of AMPERAGE (water volume). Therefore, a lot of continuous VOLTAGE (pressure) is required. As the load increases, more AMPERAGE is needed. Maxial Track Hoists require more AMPERAGE than a simple rotary saw or drill because of the extra work being performed.

NOTE: Beta Max track hoists require 20 to 30 amperes for the 115V AC models.

Connectors

Maxial Track Hoists are supplied with interlocking plugs because they are safer and more efficient conductors of electrical current. The hoists are also fitted with 20-ampere or 30-ampere service due to the higher energy (amperage) requirements. Beta Max suggests no less than 10 gauge (10/3 S.O.) for 110V AC models. Heavier electrical cable is required for Maxial Track Hoists and will allow a longer distance between the power source and hoist without causing an excessive resistance to the current flow. A result of an increase in resistance is the buildup of heat.



Using excessively long electrical cable and/or incorrect wire gauge size will generate high resistance, heat, and the potential for a fire hazard. Use only the correct length and gauge as recommended by Beta Max, Inc. Refer to Maxial Track Hoist procedure in Section 4.

Electrical Cables/Strain Reliefs

CAUTION

Electrical cables, whether hanging from a height or stretched out along a flat surface, will have strain. Strain will damage the cable by either pulling apart the connectors or separating the wires inside. A strain relief is a securing device on an electrical cable that allows the cable to move freely without separating it from the connector or power supply. The strain relief allows flexibility in the cable without putting stress on attachment points. Beta Max, Inc. strongly recommends the use of strain relief devices on the electrical cables to protect the hoist, connectors, and power supply from damage.

NOTE: Beta Max, Inc. requires a 50-percent duty cycle for track hoists. This means the hoist should be in continuous operation for only 20 minutes out of every 40 minutes.

WARNING

Failure to observe a safety instruction noted by WARNING could result in severe injury or death. Ensure all supporting structures and load-attaching devices used in conjunction with this equipment provide an adequate safety factor to handle the rated load plus the weight of the equipment. Consult the Scaffold Industry Association (SIA) for guidance in safely erecting the scaffold. If in doubt, consult a qualified structural engineer. This equipment is not to be used for supporting loads directly over the top of people. Beta Max, Inc. assumes no responsibility for the incorrect or unsafe use of this equipment.

VIntroduction and General Description

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Chapter 2 Safety

This chapter contains safety guidelines for operating the Maxial Track Hoist. It describes safety instructions included throughout this manual, lists safety precautions to follow when operating or working on the machinery, and describes machine safety devices.

This chapter contains the following sections:

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Safety

2.1 Safety Responsibilities

This chapter contains information that must be followed to ensure personal safety, as well as safe operation and maintenance of the Maxial Track Hoist. Any modification of this machine in any way may result in damage to the machinery or injury to personnel. Beta Max, Inc. is not and will not be responsible or liable for any incident or injury resulting from negligence, equipment modification, or failure to follow the safety guidelines.

Operators and maintenance personnel must use the following safety guidelines and procedures before operating or working on the Maxial Track Hoist.

- Read and understand the contents of this manual before trying to operate the equipment.
- Be familiar with all safety procedures and safety devices.
- Know the locations of all emergency stop push buttons or power disconnects.
- Observe all safety precautions.
- Always disconnect the power supply before attempting any repair or maintenance.
- Take up slack in wire rope slowly.
- Pull slack wire rope off the drum when in the down direction.
- Perform a daily visual inspection for any signs of obvious equipment damage and, if found, correct the area(s) before attempting operation of the hoist.



2.2 Safety Instructions

Safety instructions are noted throughout this manual. Each safety instruction is given as a WARNING or a CAUTION and is accompanied by a safety symbol in the left-hand margin as shown below:



WARNING

Failure to observe a safety instruction noted by WARNING could result in severe injury or death.



CAUTION

Failure to observe a safety instruction noted by CAUTION could result in injury or damage to the equipment.

NOTE: Used throughout this manual, NOTES provide useful additional data, but are never used to communicate safety hazards.



The Attention symbol shows a general safety instruction that is not related to a specific safety point. Pay attention to WARNING and CAUTION notices wherever you see this symbol.



The Pinch Point symbol shows that moving parts are a potential hazard. Reaching into equipment or wearing loose clothing near a pinch point can cause fingers to be crushed.



The Voltage symbol shows that electrical components are a potential hazard. Touching or even getting near electrical components while they are energized can result in serious injury or death. Always ensure electrical components are disconnected before performing any maintenance or repair.

Safety

2.3 Safety Precautions

Safety must be of foremost importance to everyone. Injury to personnel or damage to equipment is possible if safety procedures are not followed. The safety issues described in this chapter are the responsibility of operators and maintenance personnel at all times. Obey the following general safety precautions when operating or working on the equipment.



General

- Use caution when handling the Maxial Track Hoist during installation. There are components that may be damaged or broken if the hoist is dropped or handled roughly. Beta Max, Inc. will not be held liable for any accident or damage caused during installation by the customer.
- Know the location of the power disconnects before operating the Maxial Track Hoist.
- Never place hands within any area of the wire rope or pulleys while wire rope is in motion.
- Only authorized and trained personnel should perform electrical repair work.
- Keep operating area clear of clutter to prevent falling/tripping over obstacles.
- Inspect system daily to ensure bolts and anchoring devices are secure and tight.
- Disconnect power from hoist before attempting any electrical repairs.
- Never submerge electrical power cords or handheld control pendant in water or any other liquids.
- Do not exceed maximum lifting capacities stated on the hoist model and serial number label/plate.
- Wear heavy gloves at all times when handling the wire rope.
- Locate, read, and understand all warning/safety/capacity labels on the hoist.
- Keep hands and fingers away from drum, wire rope, and carriage when hoist is operating.





Pinch Points

• Keep hands and other body parts away from moving equipment. Pinch points present danger of injury or mutilation where moving equipment parts come together. Any moving part is a possible pinch point.



Electrical Shock

• Use caution when working on the electrical control box or any termination boxes. The control box presents danger of very high voltage and risk of electrical shock. Only authorized and trained electricians should open the control box and work with the components inside.



Eye Protection

• Wear eye protection at all times while working on or near the equipment.



NOTE: This warning, or a facsimile thereof, also appears on the hoist in the form of a label for reference and should not, under any circumstance, be removed from the equipment.

Safety

2.4 Personal Safety Equipment

Operator personal safety equipment is an important item for safe operation of any equipment. The following is a list of minimum required personal safety equipment items for safe use of the Maxial Track Hoist. There may be other required safety equipment items not contained in this list. Please refer to other source material, such as the Occupational Safety and Health Standards (OSHA) manual, the American National Standards Institute (ANSI) manual, and all local/national safety regulations of the country where the equipment is being installed.

Minimum required personal safety equipment items:

- Safety helmet
- Steel-toed work shoes/boots
- Heavy work gloves
- Safety glasses

NOTE: Failure to follow these guidelines is the sole responsibility of the equipment end user/operator. Beta Max, Inc. is not and will not be held responsible or liable for injury or damages resulting from the end user/operator not following the guidelines set forth in this manual.



2.5 Operator Safety Precautions

Safe operation of the Maxial Track Hoist requires the operator to avoid certain actions and/or conditions. Below is a list of items that must be followed for the safety of the operator, equipment, and any people near the work site.

DO NOT use or operate the hoist if the hoist is damaged or not working properly.

DO NOT use or operate the hoist if wire rope is twisted or damaged.

DO NOT use the handheld control pendant if you cannot see the hoist.

DO NOT use the handheld control pendant if you are not in direct communication with someone who is monitoring the hoist.

DO NOT allow people to stand under a loaded hoist.

DO NOT exceed the recommended duty cycle of the hoist.

DO NOT exceed the fuse rating recommended by the National Electric Code.

DO NOT change the wiring leads of the UP LIMIT switch or handheld control pendant push buttons.

Safety

2.6 Safety Checklist General

Lift meets all local safety and electrical regulations.

□ Operator has read and completely understands this manual.

 \Box Operator fully understands the operation and use of the hoist.

 \Box Operator is not tired or under stress.

□ Operator is not under the influence of medicine, drugs, or alcohol.

 \Box Operator is not alone while operating the hoist.

□ Operator is wearing the appropriate safety clothing and equipment.

 \Box Hoist identification labels, tags, and plates are not modified in any way or missing.

 \Box Work area near and around hoist is free from obstructions, clutter, and trip hazards.

Wire Rope, Hooks, and Clasps

☐ Wire rope is not old, twisted, nicked, gouged, kinked, bent, corroded, frayed, knotted, or otherwise damaged. If it is, replace the wire rope.

 \Box Wire rope is evenly and smoothly wound onto the drums.

 \Box A minimum of three wraps of wire rope are on drum at all times.

□ Hooks and clasps are not deformed, cracked, or pulling apart.

 \square Hook spring catch is properly installed and not bent or damaged.

 \Box Wire rope ends are properly terminated and secured.

 \Box Wire rope has adequate surface lubrication and is not dry to the touch.



Electrical Power Source and Cables

□ Voltage from power source is clean, correct, and properly grounded. Reference hoist labels for correct voltage.

 \Box Voltage from power source should not vary by more than 10 percent when the hoist motor is lifting a load.

 \Box Verify correct operation of the emergency UP LIMIT switch.

☐ Electrical cable between the power source and hoist should not exceed 100 feet (30.5 meters) in length unless the optional Booster transformer is being used.

 \Box Electrical power supply cable between the power source and hoist is a minimum size of No. 10-gauge wire. Use of a lighter-gauge wire is unacceptable, and use of a heavier gauge is recommended.

Electrical 20-amp twist lock connectors of the proper specification.

☐ Handheld control pendant is not cracked or damaged.

□ Handheld control pendant raise/lower buttons are not sticking and work freely.

□ Handheld control pendant emergency stop button is operating correctly.

Scaffold

☐ All fasteners/fittings are tight and secure.

 \Box Structural surface shows no sign of corrosion.

 \Box Scaffold is properly and securely braced.

□ Scaffold is properly balanced with correct amount of counterweight/ballast.

 \Box Scaffold is level in all directions and vertical (not leaning).

Safety

2.7 Safety Labels

Safety labels indicate special hazards in and around the Maxial Track Hoist work area. Read all safety labels and follow instructions on them.

Below are some examples of safety labels you may observe while working on the Maxial Track Hoist:



Figure 2.1 Example of safety labels





Figure 2.2 Example of safety labels

√ Safety



Chapter 3 Components

This chapter will cover the major components of the Maxial Track Hoist. Both models of hoist have the same major components but may vary slightly in appearance. The areas discussed are: Maxial Track Hoist, Standard Controller, Handheld Control Pendant, Track Sections, Movable Carriage Stops, Sliding Head, Universal Carriage, Modular (Systems) Scaffold Carrier, and Frame Scaffold Carrier.

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Components

3.1 Maxial Track Hoist Part No. 80-5 Series Part No. 80-25 Series



Figure 3.1

Maxial Hoist Unit - Front

- 1 Slack rope assembly tells the system that the carriage is resting. Either on the ground or is resting on the bottom and stops the system from spooling out rope.
- 2 Wire rope guard should only be removed for replacing the wire rope.
- 3 Lead to the up-limit switch. The up-limit switch stops the system from lifting more than it's rated load. It also tells the system that the carriage has reached the sliding head or top stop.





Figure 3.2

Maxial Hoist Unit - Rear

- 1 Top rung lock should be at right angles to rung when motor is attached properly.
- 2 Slack rope return spring.
- 3 Connection for controller.
- 4 Identification plate/Serial number.
- 5 Bottom rung lock should be at right angles to rung when motor is properly locked on track.
- 6 Up-limit switch.

Components

3.2 Standard Controller

The hoist controller is built into a 12 in. x 12 in. x 6 in. (30.48 cm x 30.48 cm x 15.24 cm) UL-approved enclosure with a hinged top cover. The motor controller has a 20-amp, 110V AC twist lock connector, a blue connector for the up/down handheld control pendant and a 6-pin or 10-pin connector going to the hoist motor, depending on controller model. the two different model controllers (30-40A and 30-40C) are detailed in this chapter.

Standard Controller Overview

The standard controller has one indicator light, one fuse, and a spare fuse holder.

- Green indicates when power is applied and hoist is in normal operating condition
- Red indicates when there is an electrical overload
- Spare fuse holder (inside cover)



Standard Control Box Part No. 30-40 Series



Figure 3.3

Standard Control Box

- 1 Plug To Power Supply
- 2 Motor controller/Connector pigtail (6-pin or 10-pin).
- 3 Hand held pendant.
- 4 Indicator light.

Components

3.3 30-40A Controller



- 1 Over-Current Sensor
- 2 Up Contactor
- 3 Down Contactor
- 4 Capacitor Bank
- 5 Control Transformer for Contactors



3.4 30-40C Controller



- 1 Up Contactor
- 2 Down Contactor
- 3 Start Capacitor Contactor
- 4 Run Capacitor
- 5 Control Transformer
- 6 Start Capacitor Bank
- 7 Isolation Relay Assembly
- 8 PLC
- 9 Over-Current Sensor

Components

3.5 Track Sections

The track sections are built of rugged aluminum, so they are strong but lightweight, weighing only 3 lb/ft (44.6 g/cm). The track sections come in three lengths, 9 ft 9 in. (3.0 m), 6 ft 6 in. (2.0 m), and 3 ft 3 in. (1.0 m). Each track section is 24 in. (61.0 cm) wide and 4 in. (10.2 cm) deep. The rungs are not centered but are placed back on the section of the track, so the front 1.5 in. (3.8 cm) of the 4 in. (10.2 cm) of depth can be used as a track for the universal carriage. The top of each track has a tongue that fits into the bottom channel of the next track section.

Track Section Sizes

- 9 ft 9 in. (3.0 m) Part No. 90-2
- 6 ft 6 in. (2.0 m) Part No. 90-1
- 3 ft 3 in. (1.0 m) Part No. 90-5




Figure 3.4

Track Section

- 1 TONGUE SLIDES INSIDE THE NEXT TRACK
- 2 KWIK BOLTS SECURE THE TRACK SECTIONS TOGETHER AT EVERY SECTION (KWIK BOLT PART #90-6)
- 3 SCAFFOLD CLAMPS SECURE THE TRACK SECTIONS TO THE SCAFFOLD HORIZONTAL (SCAFFOLD CLAMP PART #90-4)
- 4 TRACK FEET SUPPORT AND STABILIZE THE TRACK (TRACK FEET PART #80-1)

Components

3.6 Movable Carriage Stops

The movable bottom stop rests on a rung below the carriage to stop the carriage at a predetermined location for loading and unloading a material basket. The movable bottom stop can be removed for flexibility of system use. It is used to stop the carriage for lifting the sliding head and cable replacement if necessary.

The movable top stop slides over a rung of the track and is held in place by a locking device. This stops the carriage from traveling above that point. It is used to stop the carriage at a predetermined location for loading or unloading the material basket. The movable top stop can be moved for flexibility of system use.







Movable Carriage Stop

- 1 BUMPER PART #BZ-88
- 2 MOVEABLE BOTTOM STOP PART #80-4
- 3 MOVEABLE TOP STOP PART #80-3
- 4 BUMPER PART #BZ-88
- 5 MOVEABLE TOP STOP RUNG LOCKING DEVICE

′ Components

3.7 Sliding Head

The sliding head holds the pulley over which the wire rope travels and is designed to make it easier to add or remove track pieces. It incorporates a 5-in. (12.7-cm) pulley on which the wire rope coming from the winch goes up and over clockwise, traveling from the front of the track and back down to the carriage. The head slides on the track and a bottom arm that is spring-loaded pivots out to clear the horizontal rung members. The two rubber bumpers at the bottom of the head contact the carriage when it is at the top.



Figure 3.6

Sliding Head

- 1 PULLEY AND BUSHING PART #80-17
- 2 SLIDING HEAD PART #80-2
- 3 BUMPER PART #BZ-88
- 4 RELEASE HANDLE SPRING PART #BZ-353
- 5 RUNG RELEASE HANDLE MECHANISM PART #20-63
- 6 WIRE ROPE GOES IN FROM WINCH BACK TO CARRIAGE



3.8 Universal Carriage Part No. 200-1



Figure 3.7 Universal Carriage

Components

| REPLACEMENT PARTS | | | |
|-------------------|----------------|------------------------------|-------------------|
| Callout | Part Number | Description | Quantity per Unit |
| 1 | 30-41 | Carriage Pins | 2 |
| 2 | BZ-391 | Brake Spring | 2 |
| 3 | 80-14 | Guide Roller w/Shoulder Bolt | 12 |
| 4 | BZ-88 | Bumpers | 2 |
| 5 | 80-16 | Lower Wheel w/Shoulder Bolt | 2 |
| 6 | BZ-37 | Safety Pins | 2 |
| 7 | 80-15 | Top Wheel w/Top Wheel Pin | 2 |
| not shown | BZ-244 | 3/8" Shackle | 1 |





Figure 3.8

Universal Carriage

- 1 BRAKE IN ITS NORMAL POSITION WHILE LIFTING LOAD
- 2 BRAKE IN THE ENGAGED POSITION INDICATES SLACK ROPE OR ROPE BREAKAGE
- 3 UNIVERSAL CARRIAGE (SIDE VIEW) PART #200-1

NOTE: 3/8 " shackle is used to connect the system wire rope to the carriage.

Components

3.9 Modular (Systems) Scaffold Carrier Part No. 200-3



Figure 3.9

Modular (Systems) Scaffold Carrier

- 1 SIX ARMS ROTATE FOR EASY LOADING AND UNLOADING
- 2 CARRIAGE PINS SECURE BASKET TO CARRIAGE
- 3 SAFETY KEYS IN BOTH CARRIAGE PINS
- 4 MODULAR BASKET PART #200-3



3.10 Frame Scaffold Carrier Part No. 100-2





Frame Scaffold Carrier

- 1 STANDARD ATTACHMENT TO CARRIAGE
- 2 SAFETY STRAPS TO HOLD LOAD MUST BE USED IF FRONT OF BASKET IS REMOVED
- 3 REMOVEABLE FRONT FOR SYSTEM FLEXIBILTY
- 4 SCAFFOLD FRAME BASKET PART #100-2

| Components | | |
|------------|----------|--|
| | NOTES | |
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Chapter 4 Specifications

This chapter will cover Maxial Track Hoist specifications including wire rope, lifting capacities, power requirements, unit weights, and additional electrical information.

| | | <u>Page</u> |
|-----|--------------------------|-------------|
| 4.1 | Maxial Track Hoist | 4-2 |
| 4.2 | Wire Rope Specifications | 4-3 |
| 4.3 | Electrical | 4-4 |

' Specifications

4.1 Maxial Track Hoist

The Maxial Track Hoist can reach any working height up to 350 ft (107 m) by fitting together modular track sections that are available in 9 ft 9 in. (3.0 m), 6 ft 6 in. (2.0 m) and 3 ft 3 in. (1.0 m) lengths. A variety of attachments are available to lift different kinds of loads, from modular or frame scaffolding to roofing or sheeting materials. A maximum weight of 450 lb (204.1 kg) can be lifted in one load.

| Winch | .110V AC, 1.0 hp, single phase, fully enclosed, fan-cooled, ~50% duty cycle, 110 AC brake with internal cone or external DC brake, depending on model |
|--------------------------------------|---|
| Control Box | . 24V AC, overload sensing device - up and down contactors, power overload, fuses, heavy-duty industrial grade connectors |
| Handheld Pendant Control | . •UP and DOWN - standard controller |
| Track Sections | . 9 ft 9 in. (3.0 m), 6 ft 6 in. (2.0 m), and 3 ft 3 in. (1.0 m) lengths. |
| Maximum Height | . 350 ft/107 m |
| Maximum Capacity | .450 lb/204.1 kg |
| Wire Rope Size and Drum Capacity | . 350 ft (107 m) with 3/16-in. (4.8-mm) galvanized aircraft cable or 250 ft (76.2 m) with 1/4-in. (6.4-mm) galvanized aircraft cable |
| Power Cord Extension Size and Length | . 10/3 SO cord up to 100 ft (30.5 m) and 8/3 SO cord up to a maximum of 150 ft (45.7 m) |



4.2 Wire Rope Specifications Maximum:

250 ft (76.2 m) of 1/4-in. (6.4-mm) galvanized 7 x 19 (min. breaking strength 7,000 lb [3175.2 kg])

350 ft (107 m) of 3/16-in.(4.8-mm) galvanized 7 x 19 (min. breaking strength of 4,200 lb [1905.1 kg])



WARNING

Always replace wire rope with the same diameter and strength specifications of the original wire rope supplied with the hoist. Never replace wire rope with any different specifications without first contacting and consulting the dealer or Beta Max, Inc. If wire rope specifications are not known, contact Beta Max, Inc. with the proper model and serial number to verify correct wire rope specifications for the intended application and model.

' Specifications

4.3 Electrical

The hoist is powered by a 115V AC motor of approximately 1 hp driving a 36-to-1 gear reduction that provides a single-rope lifting capacity of 600 lb (272.2 kg) at approximately 65 to 70 fpm (19.8 to 21.3 mpm). Note that net capacity of 450 lb (204.1 kg) = 600 lb (272.2 kg) minus carriage and carrier. The motor has two windings with one end of each connected together and the start and run capacitor across the other two ends. The windings have different DC resistance and are used in this manner:

When the up winding is directly across the 110V AC supply and the down winding is in series with the capacitors, the phase shift makes the hoist turn in the up direction, reeling in wire rope. The current drawn in this up direction is about 13 amps for no load when volts are 110V AC. The current will increase to about 15 amps for full load. When the motor initially starts, it draws what is called "locked rotor" or "stalled current", which is about 40 amps. When the down winding is directly across the 110V AC supply and the up winding is in series with the capacitors, the phase shift makes the hoist turn in put direction reeling out wire rope. The current drawn in the down direction is about 3 to 4 amps at 110V AC for no load. The current will increase to 5 to 6 amps when lowering a full load. This is because it takes energy to hold the load back from falling. Again, the initial starting current for the down direction is also higher.

Remember, voltage decreases or is dropped across the power cord as current increases and current carrying capacity is proportional to the size of the conductors. When longer wire runs are necessary, the supply wire size should increase up to 8 and 6 gauge. The gear reduction has a 115V DC brake on the low torque shaft end of the motor outside the gear box. A friction disc sandwiched between the winch side plate and the DC brake disc rides on a star gear to allow for alignment. The star gear is keyed to the motor shaft. When the DC brake magnet is not magnetized (no DC current), a series of springs push the fixed brake plate against the friction disc and then against the winch side plate, stopping the motor.



Other components of the hoist assembly are the upper limit switch at the bottom of the hoist and slack rope or DOWN LIMIT switch at the top of the unit.

The following connections are made to the hoist through a heavy-duty keyed connector:

| PIN | 30-40C 10-pin | 30-40A 6-pin |
|-----|---------------------------------|----------------------|
| 1 | AC for up to motor | AC for up to motor |
| 2 | AC common to motor | AC common to motor |
| 3 | AC for down to motor | AC for down to motor |
| 4 | Centifugal switch in motor | Limit switch common |
| 5 | DC brake | UP limit switch |
| 6 | DOWN limit switch | DOWN limit switch |
| 7 | Centifugal switch in motor | N/A |
| 8 | UP limit switch | N/A |
| 9 | 24V AC Common to limit switches | N/A |
| 10 | DC brake | N/A |
| 11 | Frame ground | N/A |

DESCRIPTION

The slack rope or down limit circuit in the controller uses the normally closed contacts on the switch. Then, when the bar is pulled away from the switch by the wire rope, there should be a short or 0 ohms resistance between pins 6 and 9.

The up limit circuit in the controller uses the normally closed contacts on the switch. Therefore, there should be a short or 0 ohms resistance between pins 9 and 8 with no load on the winch. When the hoist is lifted up by its own power, as the carriage hits the rubber bumpers on the sliding head after overcoming the spring resistance, then an up limit or overload condition occurs because there is no connection between pins 9 and 8.

| Specifications | | | |
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Chapter 5 Operation and Setup

This chapter will cover the operation and setup procedures for Maxial Track Hoist.

| | | <u>Page</u> |
|-----|--------------------------|-------------|
| 5.1 | Initial Setup | 5-2 |
| 5.2 | Operating The Brake | 5-12 |
| | Brake Operation | 5-13 |
| | Brake Cleaning | 5-13 |
| | Brake Adjustment | 5-14 |
| 5.3 | Raising the Sliding Head | 5-15 |
| 5.4 | Forces on Scaffold | 5-17 |

⁷ Operation and Setup

5.1 Initial Setup



Figure 5.1 Maxial Track Hoist



 SLIDING HEAD
SCAFFOLD CLAMPS
KWIK BOLTS
UNIVERSAL CARRIAGE (SHOWN WITHOUT CARRYING DEVICE)
MOTOR
KWIK BOLTS
BASE FEET

Once the ideal location for the Maxial Track Hoist has been determined, the setup and operation are not complicated. There are no tools necessary for installing your Maxial Track Hoist. When deciding upon the most suitable position for the hoist, several items are to be considered. These include whether the unit is to be attached to modular or frame scaffolding, whether the operating system is centrally located, and whether the scaffold carrier clearances are satisfied.

- **1.** Using a 9 ft 9 in. (3.0 m) section of track, lay the track flat on the ground. Notice that the rungs are not centered front to back on the track. Track should be positioned with rungs closer to ground than to installer.
- 2. Slide the universal carriage onto the base track section from the bottom, checking to make sure that the top of the universal carriage is slid onto the track first. Slide the universal carriage all the way up the track until the bottom of the carriage is above the bottom of the track.
- **3.** Lift the track section into an exact vertical position against the scaffolding, so that the carriage is facing out. Once the track is in the correct position, attach it to the horizontal member of the scaffolding section using scaff-clamps. Twist the T-bolt to pull the track tightly against the scaffolding. There should be 2 scaff-clamps positioned no farther than 6 ft 6 in. (2.0 m) apart all the way up the track.
- **4.** Grasp the sliding head section so that the rung-lock mechanism is positioned toward the bottom of the track and the pulley facing front. Slide the sliding head section down from the top of the base system until it is secured onto the top rung of the track.

- **5.** Take another piece of track with the tongue facing up and rungs at the back of the track and slide it down on the track that is secured to the scaffolding.
- 6. Align the holes that are in the tongue with the holes in the channel.
- **7.** Take the flange bolt on the Kwik bolt and insert it through the holes and turn 90 degrees, then tighten the handle. Repeat for both sides of each track section.
- **8.** Secure the track to the horizontal scaffolding with two scaffold clamps on the sides of the track.
- **9.** Grasp the sliding head section by the handle, pulling it up the track and resting it on the third rung of the second piece of track just installed.
- **10.** Slide the universal carriage up the track so that the bottom of the carriage is higher than the fourth rung from the bottom section of the track. The carriage will stay up by the mechanical brake.
- 11. Set the hoist motor in front of the base section with the wire rope on the drum facing out. Set the bottom of the hoist on the second rung from the ground. Slide the hoist in towards the back of the track, twisting and locking the bottom and top rung latch.
- **12.** Attach the control/electrical box to a horizontal member of the scaffolding, so the box will be in view of the person operating the hoist.





maxial_1

Figure 5.2 Connection to Hoist

13. Connect the 6-pin or 10-pin connector with two wire cables (1) from the control/electrical box (2) to the connection (3) on the back of the hoist (4).



Figure 5.3

Connection to Handheld Control Pendant

14. Connect the pendant connector with the one wire (5) from the control/electrical box (2) to the connector (6) from the handheld control pendant (7).





maxial_3

Figure 5.4

Power Plug Connection

15. Connect the power plug (8) from the control/electrical box (2) to a 110V AC power source using no smaller than 10/3 power cord extensions.

16. Make sure the power light on the control box is lit. Check to see that the voltage reading on a meter does not exceed 130V AC or go below 105V AC. If power is not sufficient or too strong, find a different supply outlet. The preferred range is from 112V AC to 120V AC.



CAUTION

Always wear gloves when handling the cable and when pulling from behind the slack rope bar.

- **17.** Depress the down button on the handheld control pendant with one hand and grasp the end of the cable with the other hand. While depressing the DOWN button on the handheld control pendant, walk backwards away from the hoist about 20 ft (6.096 m).
- **18.** Keeping a tight pull on the wire rope from the drum, pass the end of the cable to a person at the sliding head section.



Figure 5.5 Threading Cable

19. Thread the cable from the hoist through the outer side of the pulley (refer to Sliding Head procedure) on the sliding head assembly and back down through the center to attach to the universal carriage using hitch pin (shown below).





Figure 5.6

Connecting Wire Rope

- 1 CARRIAGE PIN PART #30-41
- 2 BRAKE SPRING PART #BZ-391
- 3 GUIDE ROLLERS WITH SHOULDER BOLT PART NUMBER #80-14
- 4 BUMPERS PART #BZ-88
- 5 LOWER WHEEL WITH SHOULDER BIT PART #80-16
- 6 SAFETY PIN PART #BZ-37
- 7 HITCH PIN PART #BZ-397
- 8 TOP WHEEL WITH TOP WHEEL PIN PART #80-15

20. Connect the end of the wire rope to the braking bar hitch pin on the universal carriage.



MODULAR (SYSTEM) SCAFFOLD CARRIER



FRAME SCAFFOLD CARRIER

Figure 5.7

Attaching Carrier



- **21.** Secure the desired carrier onto the carriage (using carriage mounting pins with keepers).
- **22.** Depress the UP button and take the carriage up the track until it contacts the sliding head section. This should create an up limit condition and shut the hoist off. The UP LIMIT indicator light in the control/electrical box should be lit.
- **23.** Depress the down button. The universal carriage will come down the track until it contacts the ground. This should create a down limit condition and shut the hoist off. The DOWN LIMIT indicator light in the control/electrical box should be lit.
- NOTE: A movable top and bottom stop can be inserted at desired levels along track to stop hoist in up or down direction.
- 24. The Maxial Track Hoist is now ready for use.

5.2 Operating the Brake



Figure 5.8

Brake

- 1 BRAKE GAP ADJUSTMENT NUT
- 2 STEEL PLATE
- 3 ALUMINUM PLATE
- 4 HEX HEAD SCREW
- 5 MAGNET
- 6 RING
- 7 PLUNGER (5 EACH)
- 8 LARGE SPRING (5 EACH)
- 9 SMALL SPRING (3 EACH)
- 10 ROTOR SHAFT
- 11 SNAP SPRING (INNER AND OUTER)
- 12 GREASE SEAL
- 13 KEY
- 14 BRAKE DISC DRIVE COUPLER
- 15 BRAKE DISC
- 16 COVER PLATE



Brake Operation

The rotor shaft (10) extends through the cover plate (16) and the grease seal (12) which prevents the gearbox oil from getting on the brake disc (15).

The brake disc drive coupler (14) is held to the rotor shaft (10) by the key (13) and inner and outer snap rings (11).

The brake action and holding force is accomplished by two small springs (9) and five large springs (8) with plungers (7) pushing against steel plate (2) and aluminum plate (3), putting pressure on the brake disc (15) and cover plate (16).

An electromagnetic field is established by applying 110V DC to magnet (5), which pulls steel plate (2) and aluminum plate (3) against magnet (5), releasing pressure on either side of the brake disc (15), allowing the rotor to turn.

The coarse adjustment of the braking force is supplied by large springs (8) and small springs (9). Turning the pressure ring controls the finer adjustment for more or less pressure. The five plungers (7) fit into depressions in the back side of ring (6) preventing the ring from randomly turning.

Brake Cleaning

NOTE: Always replace the oil seal when cleaning the brake.

Loosen and remove the three hex head screws (4), making sure that the brake gap adjustment nuts (1) do not turn in the magnet (5).

Remove the complete brake assembly from the cover plate (16). Items (10), (13), (12), (11), (14), and (15) should stay with the cover plate (16).

Remove the outer snap ring (11), the brake disc drive coupler(14), and the inner snap ring (11). Inspect the grease seal (12) to make sure there are not any oil leaks.

After cleaning, reinstall brake assembly and tighten three hex head screws (4), being careful not to move the brake gap adjustment nuts (1). After brake is in place, check air gap to be sure it is correct 0.012 in. $\pm - 0.002$ in. (0.305 mm $\pm - 0.051$ mm). (Refer to Brake Adjustment Procedure.)

The electrical panel is designed with connectors, so you can disconnect the motor and still operate the brake by itself.

Brake Adjustment

The three brake gap adjustment nuts (1) that determine the air gap distance are threaded into magnet (5).

As a starting point, turn all three adjustment nuts (1) counterclockwise (when viewed from the top), just far enough so that hex head screws (4) are just lightly tightened. Next, loosen hex head screws (4) just a little and turn nut (1) counterclockwise while retightening hex head screws (4) down snugly. Check air gap, making sure three adjustment bolts are equal to 0.012 in. ± -0.002 in. (0.305 mm ± -0.001 mm).



5.3 Raising the Sliding Head

This procedure takes two people, one at the motor and one above the sliding head.



Figure 5.9

Sliding Head Controls

- 1 PLUG TO POWER SUPPLY
- 2 MOTOR CONTROLLER PIGTAIL CONNECTION (6-PIN OR 10-PIN)
- 3 HAND HELD PENDANT
- 4 INDICATOR LIGHT

- **1.** Lower the universal carriage down to rest on the ground or rest on the bottom stop.
- **2.** With a glove on, grasp the wire rope with one hand at least 1 ft (30.48 cm) above the motor. (Always keep a tight pull on the wire rope.)
- **3.** With the opposite hand, press the DOWN button on the handheld control pendant while keeping a tight pull on the wire rope with the other hand. Release approximately 20 ft (6.096 m) of wire rope.
- **4.** The person working above at the sliding head will pull up on the sliding head, resting it on the rung of track at the desired level (never exceeding one rung above the last place the track is secured to the scaffolding).
- 5. If you need more wire rope to get to a higher rung, repeat steps 3 and 4.
- 6. If you have extra wire rope after the sliding head is resting on the rung at the desired height, keep tight pull on the wire rope with a gloved hand, press the UP button and reeve the excess wire onto the drum, never getting your hand closer than 1 ft (30.48 cm) to the motor.
- 7. You are now ready to begin work at the desired height.



5.4 Forces on Scaffold





NOTE: Forces are for a 175 ft system. For a balanced load; the pullout force will be equally distributed into F1 and F2 as denoted. For forces that push on the scaffold F1 and F2 will be reversed. For a balanced load, shear force is minimal. Wind is not taken into account. Maximum push/pull forces in direction indicated; P1=490 lb and P2=214 lb. Forces shown assuming Maxial system is clamped to scaffolding using 2 Scaff-Clamps every 6.5 ft; these clamps should be arranged as shown: 21 in. apart, centered on centerline. Forces shown are the maximum when the basket is at any position in the system.



Chapter 6 Maintenance and Care

This chapter will cover the maintenance and care for Maxial Track Hoist.

| 6.1 | Care and Storage |
|-----|---------------------------------|
| | Motor and Electrical Connectors |
| | Wire Rope (General) |
| 6.2 | Changing Wire Rope |

Maintenance and Care

6.1 Care and Storage

Maxial Track Hoists are rugged and durable. However, because they are used under all sorts of conditions, service timetables and guidelines must be followed for hoist optimum performance and safety. Store the hoist away from excess moisture when not in use. Keep the hoist covered if it is being stored in a corrosive environment. On a daily basis, remove all debris, mud, dirt, or other foreign materials from the hoist and all auxiliary equipment.

Motor and Electrical Connectors

Be careful not to damage the motor housing cooling fans. If the fins are broken, have the motor examined immediately by a qualified technician. Do not allow the handheld control pendant to become submerged in water or any other liquid. Keep all electrical cables and connections from becoming cut, bent, corroded, or damaged in any way.

Wire Rope (General)

Ensure the wire rope is not bent, kinked, corroded, knotted, or damaged in any way. If the wire rope shows any of these conditions, immediately replace the wire rope. During normal hoist operation and typical wear, the wire rope will lose some of its original lubricant. It is extremely important that the wire rope is always lubricated. Use 90W gear lube generously (not dripping) applied with a shop towel.



WARNING

Always wear heavy gloves when handling the wire rope to prevent possible hand injury. Never place hand between carriage and drum.


6.2 Changing Wire Rope

1. Depress the DOWN button on the handheld control pendant to spool out the wire rope until close to the end where the wire rope is attached to the drum.



Figure 6.1

Wire Rope Guard Back

- 1 WIRE ROPE END FOR CONNECTING TO CARRIAGE
- 2 ACCESS HOLE FOR ATTACHING WIRE ROPE
- 3 BRAKE COVER
- 4 CONNECTION FROM THE CONTROL BOX TO THE MOTOR
- **2.** Align the hole in the side of the drum with the two bolts that are wedging a plate to hold wire rope.
- **3.** Disconnect power.

Maintenance and Care



Figure 6.2

Wire Rope Guard Front

- 1 UP LIMIT SWITCH
- 2 TOP RUNG LOCK
- 3 TORSION SPRING FOR THE SLACK ROPE SWITCH
- 4 LOOSEN THESE TWO BOLTS TO REMOVE THE WIRE ROPE GUARD PART #80-18 REMOVE ONLY TO CHANGE WIRE ROPE
- 4. Loosen two bolts that hold wire rope guard.
- **5.** Thread new wire rope into hole on the side of the drum and remove old wire rope.
- 6. Thread new wire rope into hole in the top of drum and wedge behind plate.



- **7.** Tighten the two bolts within the hole on the side of drum to wedge wire rope between the plate and the drum.
- 8. Put wire rope guard back on by tightening two bolts.
- 9. Reconnect power.
- **10.** Keep one hand on the handheld control pendant and one GLOVED HAND on the wire rope, never getting the hands closer than 12 in. (30.48 cm) to the drum. Tighten grip on wire rope and depress the UP button.
- **11.** Always keeping a tight pull on the wire rope, spool the wire rope onto the drum, keeping a nice tight spool.

 \checkmark Maintenance and Care

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Chapter 7 Periodic Maintenance

This chapter will cover the periodic maintenance for Maxial Track Hoist.

| 7.1 | Daily Maintenance | . 7-2 |
|-----|-------------------|-------|

✓ Periodic Maintenance

7.1 Daily Maintenance

☐ Make sure that wire rope is reeved onto drum evenly.

 \Box Check spring for emergency brake on carriage.

 \Box Check wheels on carriage, looking for worn spots.



<u>Page</u>

Chapter 8 Troubleshooting

Maxial Track Hoists are designed to operate consistently and trouble-free. In the event the hoist does not operate or operates inconsistently, the following troubleshooting guide will aid in correcting the problem.

| 8.1 | Troubleshooting Table | 8-2 |
|-----|-----------------------|-----|

✓ Troubleshooting

8.1 Troubleshooting Table

CAUTION

Before attempting to troubleshoot the Maxial Trcak Hoist, read and understand all the information in the Safety chapter.

| Problem | Possible Cause | Solution |
|--|--|---|
| Hoist will not operate when pressing either the UP or DOWN push buttons; | No electrical power, LED not lit. | Check all circuit breakers, fuses, and electrical cord connections to ensure all are functioning properly and are not damaged. |
| hoist motor makes no sound. | Unit has been used continuously for more than 20 minutes and has exceeded the recommended 50- percent duty cycle. | Allow motor to cool for 20 minutes before using. |
| Hoist makes excessive vibrating noise. | Wire rope has come off the drum. | Check the wire rope to ensure it is properly spooled onto the drum. |
| | Brake fan blade broken. | Inspect brake fan. |
| | Nuts and bolts securing the shroud and housing have come loose. | Check all nuts and bolts and tighten if needed. |
| Hoist operates in the down direction but will not go up. | UPPER LIMIT switch problem. | Check circuit breakers, fuses, and electrical cord connections to ensure all are functioning properly. |
| | Handheld cntrol pendant wiring problem. | Try operating hoist with another handheld control pendant. |



| Problem | Possible Cause | Solution |
|--|--|---|
| Hoist will not lift the load from a stopped, suspended | Power source problem. | Check for correct voltage at the motor with the hoist loaded and lifting. |
| position; motor | Brake needs adjustment. | Adjust the brake. |
| | Load is heavier than the rated maximum for the model being used. | Reduce the weight of the load. |
| | Capacitor damage or capacitor malfunction. | Test capacitors and replace if needed. |
| Hoist operates in the up direction without a load, or with a small load, | Power source problem. | Check for correct voltage at the motor with the hoist loaded and lifting. |
| but will not lift a | Brake needs adjustment. | Adjust the brake. |
| | Load is heavier than the rated maximum for the model being used. | Reduce the weight of the load. |
| | Capacitor damage or capacitor malfunction. | Test capacitors and replace if needed. |
| Hoist lifts the load when | Wire rope has been incorrectly spooled onto the drum. | Check and/or correct the spooling direction of the wire rope. |
| DOWN push button and lowers the load when pressing the UP push button. | Switch wired incorrectly. | Check for correct wiring of all electrical switches. |
| Stopped, suspended load goes down when pressing the UP | Load is heavier than the rated maximum for the model being used. | Reduce the weight of the load. |
| push button. | Capacitor damage or capacitor malfunction. | Test capacitors and replace if needed. |

Troubleshooting

| Problem | Possible Cause | Solution |
|--|--|---|
| Without a load, hoist will not operate when | Brake needs adjustment. | Adjust the brake. |
| pressing either the UP or DOWN push buttons: | Capacitor damage or malfunction. | Test capacitors and replace if needed. |
| motor hums. | No electrical power, LED not lit. | Check all circuit breakers, fuses, and electrical cord connections to ensure all are functioning properly and are not damaged. |
| A normal-rated load slips downward when hoist is stopped. | Brake needs adjustment. | Adjust the brake. |
| Hoist will lift a normal-rated load but will not lower the same load. Hoist will lower a normal-rated load but will not lift the same load. | Possible handheld control pendant switch and/or handheld control pendant cable damage. | Repair/replace the handheld control pendant switch and/or cable assembly. Check the electrical wiring of all switches for damage. |
| Handheld control pendant switch push buttons do not have the distinct "click" sound when pressed. | Handheld control pendant switch and/or push buttons are damaged. | Repair and/or replace the handheld control pendant switch. |
| Wire rope is not tracking evenly on drum. | Unit is not level vertically and horizontally. | Level the hoist using an accurate bubble level. |



<u>Page</u>

Chapter 9 Parts

This chapter will cover the spare parts available for the Maxial Track Hoist.

| 0.1 | D 110 | | • |
|-----|----------------|-----------|-------------|
| 9.1 | Recommended Sp | are Parts |) -2 |

Parts



9.1 Recommended Spare Parts





Movable Bottom Stop 80-4 (Qty 1)



Pins for attaching Carrier to Universal Carriage 30-41 (Qty 2)



3/8" Shackle for attaching Wire Rope to Carriage BZ-244 (Qty 1)



Spring for Slack Rope Bar BZ- 353 (Qty 1)



Springs for Emergency Brake on Carriage BZ-391 (Qty 12)

V_{Parts}

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Chapter 10 Warranty

Beta Max, Inc. warrants its equipment to be free from defects in material and workmanship under normal use and service.

Our obligation under this warranty, as outlined below, is limited to repairing or replacing, at our discretion, any part of the unit which proves, upon examination, to be defective in material or workmanship. The unit is to be returned to Beta Max, Inc. through an authorized distributor. The warranty period, shown below, begins on the date the equipment is sold to the original purchaser.* Any return shipments to Beta Max, Inc. must be prepaid.

| High Wear Items: |
|---|
| ngn wear henis. |
| Wire rope, pulleys, hooks, shackles |
| Electrical: |
| Handheld control pendant switches, electrical plugs, and cable90 days or 3 months |
| Mechanical: |
| Motor, brake, wire rope drum, trolley wheels1 year |
| Gears: |
| Gear reduction drive assembly |

*For **rental** machines, the Dealer is defined as the Original Purchaser. *For **resale** machines, the First User is defined as the Original Purchaser.

. Warranty

Any parts proven to be defective, upon inspection, will be repaired or replaced at no cost for the parts. The obligation under this warranty includes labor and freight costs if determined the product failed under normal usage within the described time.

Any defect in this equipment must immediately be brought to the attention of the distributor from whom the unit was purchased. The distributor will make arrangements with the factory for repairs or replacement of parts within the terms of this warranty. Distributors must get a return authorization number from Beta Max, Inc. before any item is returned for repair or replacement.

The obligation of Beta Max, Inc. is limited to replacing parts and does not include replacing the complete unit. This warranty is void on any unit that has been modified or tampered with, repaired by persons other than a factory representative or an authorized Beta Max distributor, repaired with other than Beta Max standard parts, or damaged by reasons of accident, alteration, misuse, or abuse.

This warranty is in lieu of all other warranties expressed or implied. We do not authorize any person or representative to make any other guarantee or to assume for us any liability in connection with the sale of our products other than those contained herein. Any agreement outside of, or contradictory to, the foregoing shall be void and of no effect.

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