

OPERATORS MANUAL

IBEX™1000 Series

Climb-Assist System

(Models 1060, 1080, & 1100)



WARNING:

- All personnel operating this equipment must read and completely understand this manual.
- All personnel must be thoroughly trained in the use of the equipment and its operational and safety features.
- Only authorized and physically fit personnel shall operate the equipment.
- All persons operating this equipment must wear a safety harness at all times and tie-off as required.
- Any operation in violation of these instructions is at the operator's own risk and may result in serious injury.
- This manual must be kept with the system at all times.
- Only use spare parts supplied by Power Climber Wind.



Manufacturer

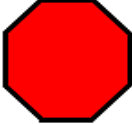







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1. SYMBOLS USED IN THIS MANUAL

SYMBOL	TERM	MEANING
	STOP	Stop action and follow the instructions before continuing.
	WARNING	Warns against possible immediate serious injury or death.
	CAUTION	Warns against possible injury.
	ELECTRICAL HAZARD	Warns against possible electrical shock hazard.
	NOTE	Must read this before performing any action that follows.
	TIP	Remember and take this into account.
	SAFETY GEAR	Mandatory use of safety gear.
	DOCUMENT	Make sure to document any items of interest and processes performed.

2. EQUIPMENT DESCRIPTION

2.1 General Description

The IBEX™ 1000 climb assist system is a motorized, continuous loop system that provides load support to the climber on both the ascent and descent. The system allows user-adjustable support settings at 50, 75, 100, and 125 pounds, and provides constant load support regardless of climbing speed via a closed feedback loop between the motor drive and load-sensing EasyClimb Controller that attaches the climber to the belt.

The mounting system is adaptable and can be fitted to any ladder or tower with minimal adjustment necessary (excluding the belt, which must be sized appropriately).

The IBEX™ is permanently installed on a specific WTG ladder and consists of:

1. Top sheave assembly and mounting
2. Gear motor
3. Bottom sheave assembly and mounting
4. Electrical control box
5. EasyClimb Controller
6. Round reinforced polymer belt and belt guides
7. Upper and lower ladder rung reinforcements

2.2 Specifications

Power Supply	110Vac 60 Hz; 230 Vac 50 Hz 1ø, 0.5HP Motor
Amperage Draw	5.2 maximum
Belt Diameter	10.5mm
Environmental Rating	IP55
Corrosion Protection	Class 3
Noise level	75 dBA
Temperature Range	-35C to +40 C Operating -40C to +60C Storage

2.3 Approvals

All electrical components of the IBEX™ 1000 are cUL-listed. Moving parts are guarded in compliance with OSHA 1917.151.

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to 47 CFR Part 15 of the FCC rules. This equipment generates, uses and can radiate radio frequency energy and, if not

Reference: 702991-1	Issue date: 20-Dec-2008	Revision: A	Page 5 of 25
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installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

FCC Warning: Changes or modifications not expressly approved by Power Climber Wind for compliance could void the user's authority to operate the equipment.

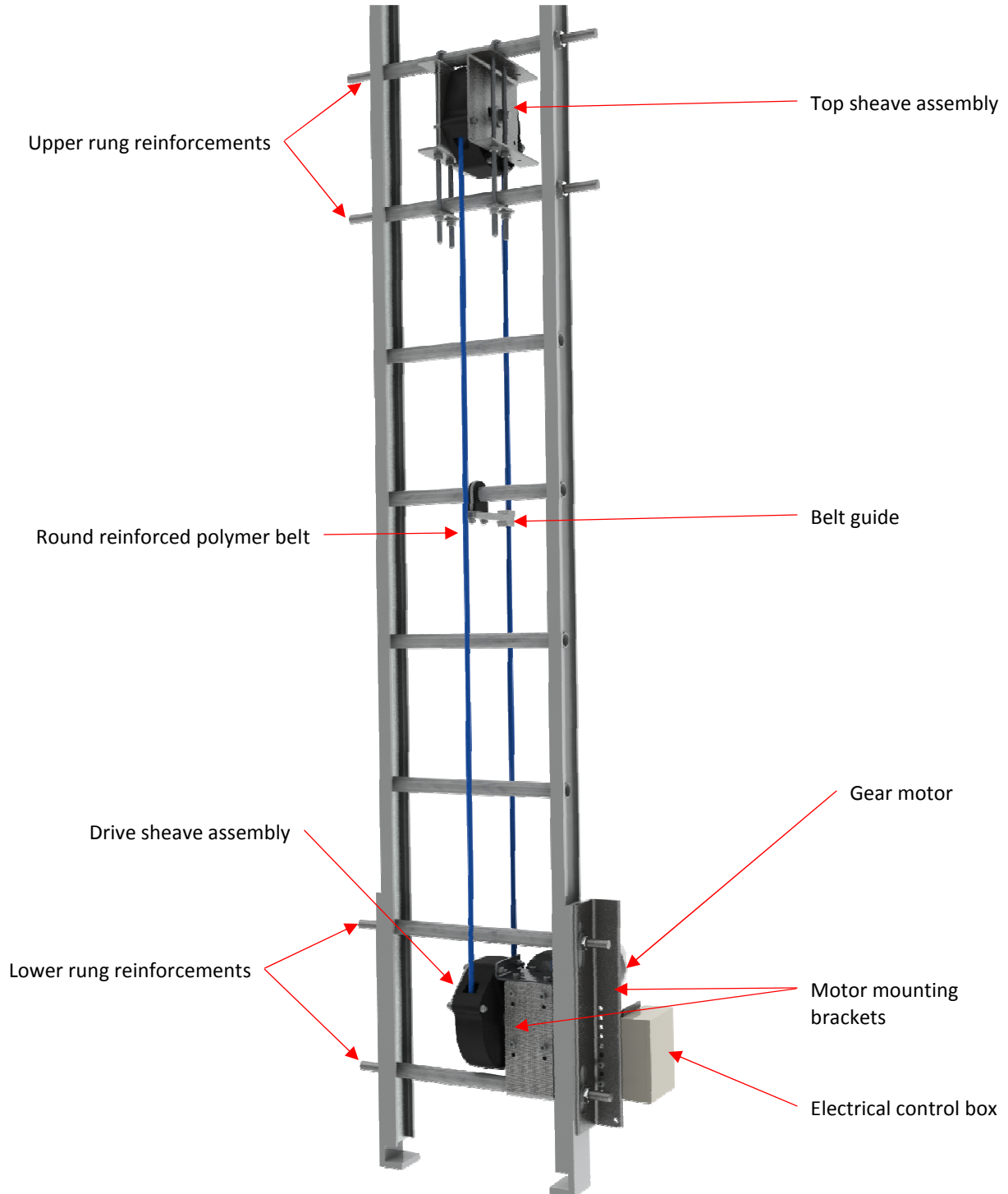


CAUTION: People with implanted pacemakers should not use this equipment. Radio waves could have unexpected effects on the operation of medical devices.



WARNING: The IBEX™ 1000 climb assist system is NOT a safety device and must only be used in conjunction with an independent personal fall arrest system.

2.4 General View

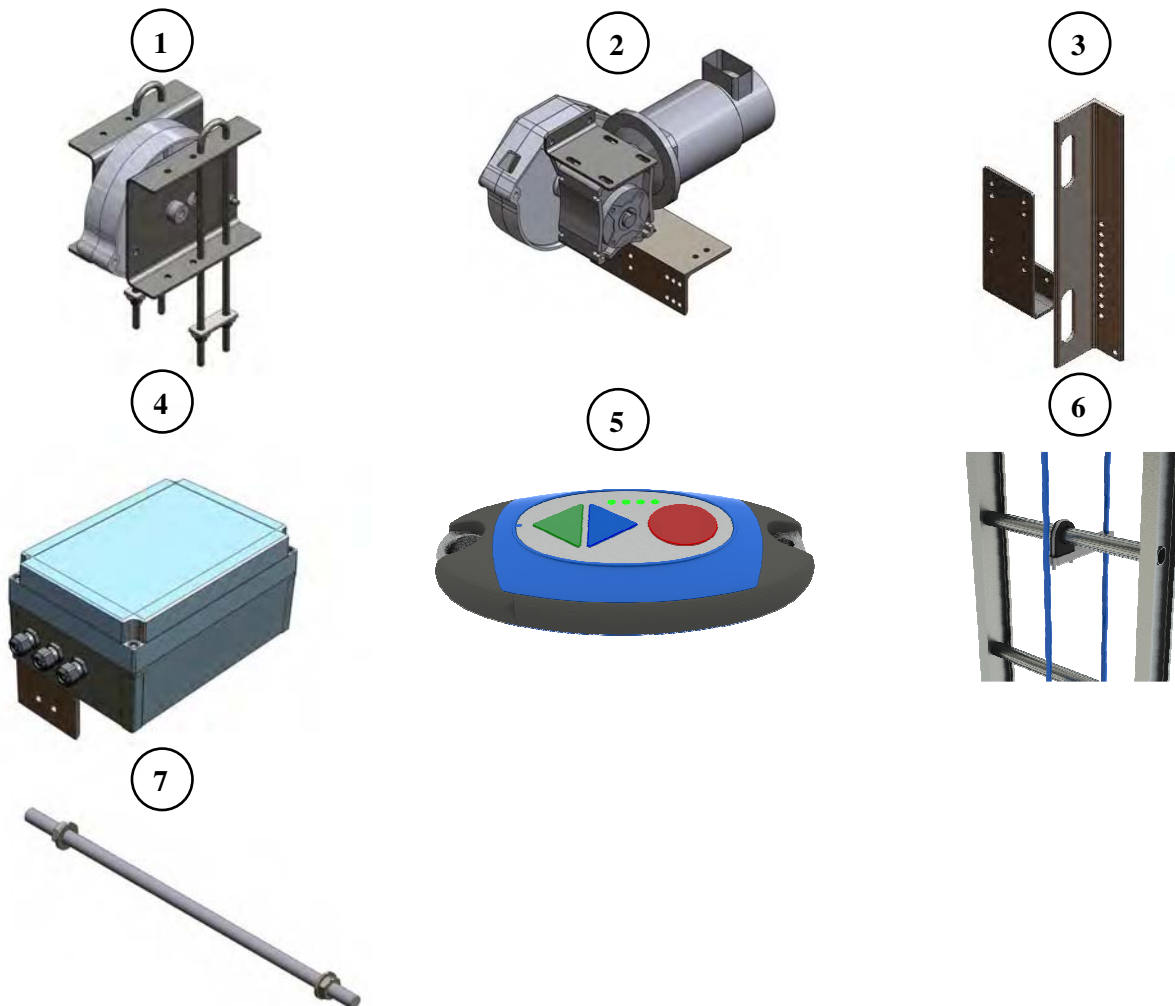


3. IBEX™ 1000 ASSEMBLY INSTRUCTIONS

3.1 Components

The IBEX™ 1000 climb assist system consists of the following parts:

1. Top sheave assembly and mounting hardware
2. Gear motor assembly
3. Gear motor mounting brackets
4. Electrical control box
5. EasyClimb Controller
6. Round reinforced polymer belt and belt guides
7. Upper and lower rung reinforcements



Fasteners:

- The components of the IBEX™ 1000 are assembled using standard fasteners.
- Always apply anti-sieze (Loctite 8065, provided with packing) on the bolts before tightening.
- Two washers are to be used on every bolt - one at the nut side and one at the head of the bolt.
- All bolts should be firmly tightened. If nylon lock nut is used, bolt thread shall protrude passed the nylon lock nut by at least one thread. If a lock washer is used, bolt should be tightened to compress lock washer flat.



NOTE: Either a lock washer or Nylok nut shall be used for all fasteners for field assembly

3.2 Assembly Process

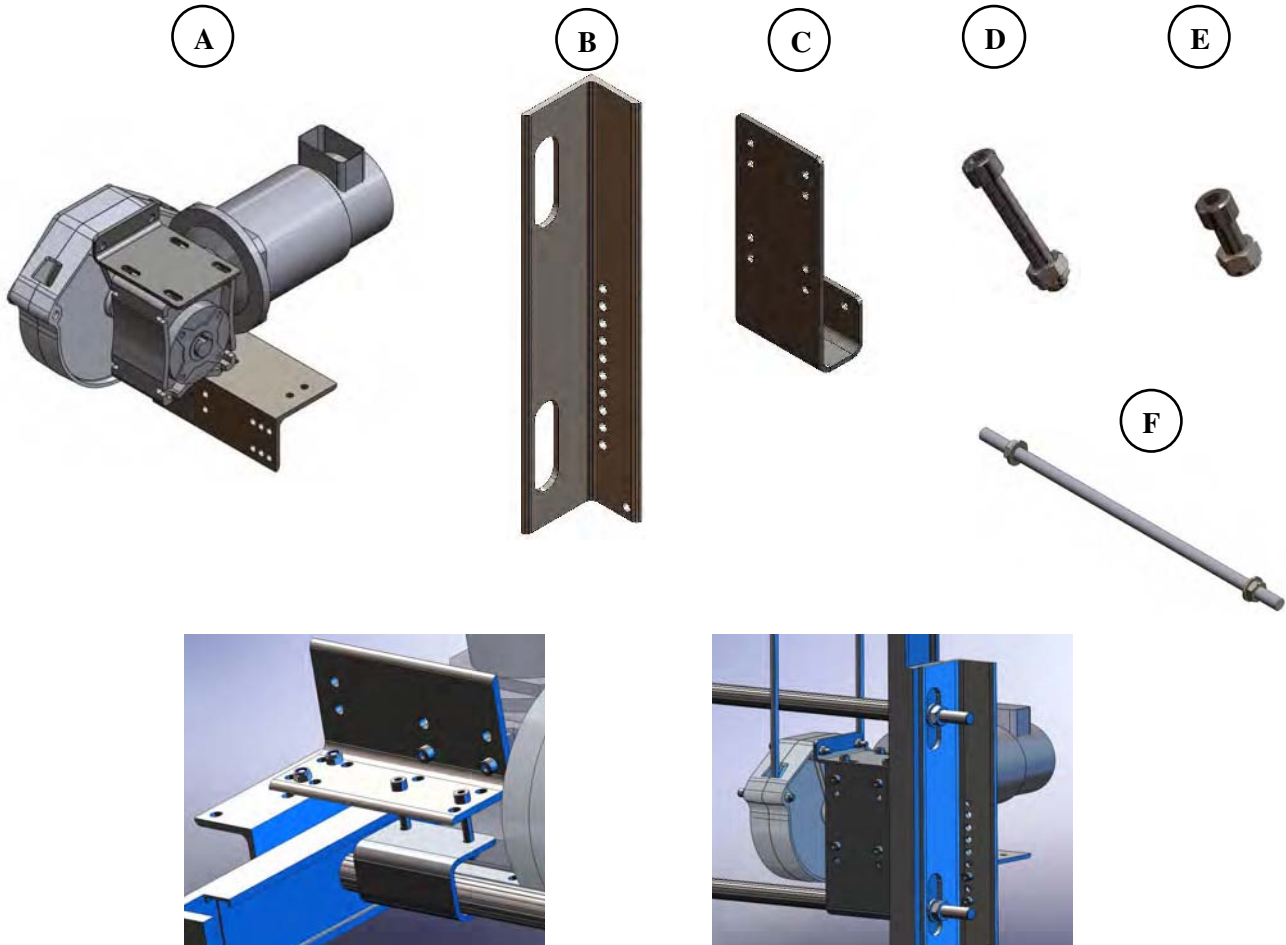
Unpack the IBEX™ 1000 packing box and verify its contents against the enclosed packing list. Follow the below instructions to install the system on a ladder.

Top Sheave Assembly



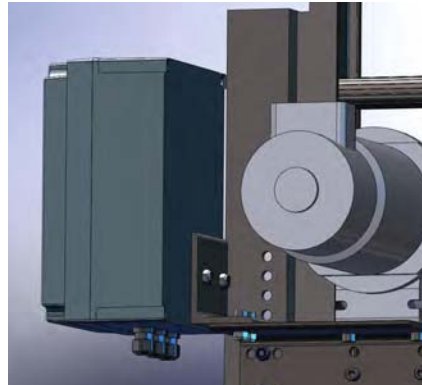
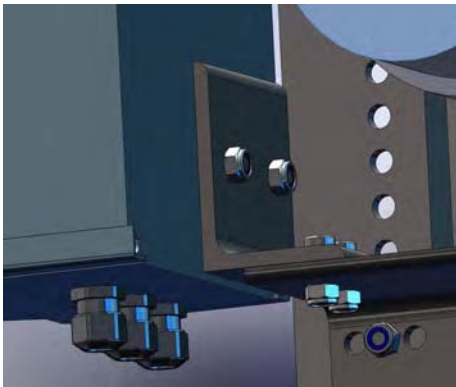
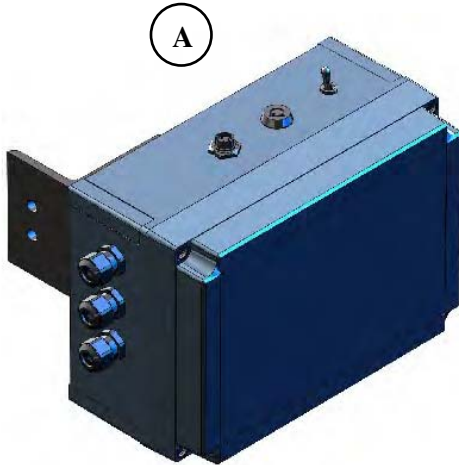
1. Remove nuts, washers and plate from U bolt (B) and rung reinforcement (C).
2. Install rung reinforcement thru desired rung and the next rung below it. Install washer and nuts to ends 4 times. Tighten nuts at each end so there is an even amount of exposed threads on either side.
3. Hold Top Sheave (A) below the top rung with rung reinforcement .
4. Put U bolt over reinforced rung and thru mounting plate holes at top only.
5. Install one nut on both sides and start tightening, as you tighten allow the U bolt to continue throu the lower mounting plate holes and tighten.
6. Install one nut on both sides to secure the bottom of the mounting plate.
7. Install plate, washers and nuts and tighten.
8. Repeat steps 4-7 for other side.

Motor and Drive Sheave Assembly



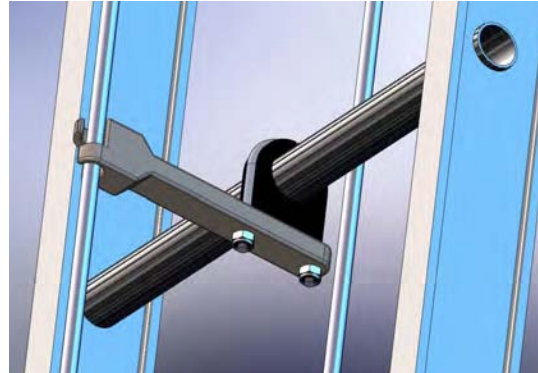
1. Remove nuts, washers from rung reinforcement (F).
2. Install rung reinforcement thru desired rung and the next rung above it.
3. Take brace (C) and mount it larger face forward and touching the lower reinforced rung.
4. Hold Motor / Drive Sheave align with desired mounting holes on brace (C) aligning the holes on the gear box.
5. Install nuts and bolts (E) 4 times and tighten.
6. Install nuts and bolts (D) 2 times and tighten.
7. Take brace (B) slide over ends of rung reinforcement and align to holes on Motor / Drive Sheave.
8. Install nuts and bolts (E) 2 times and tighten.
9. Install washer and nuts to ends of rung reinforcement 4 times. Tighten nuts at each end so there is an even amount of exposed threads on either side.
10. Check for alignment with Top Sheave and adjust as needed by loosening nuts and bolts and retightening them.

Electrical Control Box and Connections



1. Bolt the electrical box to the motor mounting brackets as shown using bolts (B) 2 times.
2. Connect the power cable to the tower single phase supply but do not apply power.
3. Open the cabinet lid.
4. Using 20A SOW (or equivalent) cable, feed the cable through the gland and wire the 115V connection point to the tower supply point.
5. Connect the prewired short cable to the motor terminals. Ensure the frame ground terminal at the motor is connected.
6. Mount the antenna on a convenient place close to the control cabinet.
7. Feed the SMA connector on the coax cable through the gland and connect to the ANT socket on the Host pcb.
8. Close the lid.

Belt Guide Installation



1. Install belt guides as shown at each landing opposite the climbing side at each intermediate platform and elsewhere as needed to prevent abrasion and stabilize belt travel.

Belt Installation

1. Place the leader rope and belt coil on the decoiler at the base of the ladder landing under the mezzanine.
2. Worker 1 climbs:
 - a. Feed the leader rope (previously hoisted to the top) through the sheave and shroud.
 - b. Attach a 5 lb weight to the leader rope end.
 - c. Lower the leader rope down the non-climb side of the ladder.
 - d. Tie off the end of the leader rope at the top.
3. Worker 2 at base:
 - a. Disconnect the weight and attach the Kellums grip loop to the end of the leader rope.
 - b. Attach the Kellums grip mesh to the free end of the belt and feed it as Worker 1 raises the belt to the top up the non-climb side of the ladder.
4. Worker 1 at top:
 - a. Pull the leader rope up to raise the belt.
 - b. When belt reaches top with a 3 ft overlap, tie off the belt to prevent it from dropping (use a rope grab tied off to the ladder rail).
 - c. Remove the Kellums grip and feed the belt through the sheave and shroud to the climb side.
 - d. Replace the Kellums grip on the belt end and attach it to the side D-ring of the harness. (use a carabiner)
 - e. Climb down while pulling the belt down.
5. Worker 2 at base:
 - a. Continue to assist belt to feed off the decoiler.
 - b. When the belt end reaches the base, tie off to the ladder.
6. Cut the belt off the coil and feed the end through the motor shroud to the climb side ensuring sufficient belt available for tensioning and welding, and tie off.
7. Hoist coil of round belt to yaw deck. Feed through top sheave and lower each side down tower to bottom or ladder. Feed back side belt through drive sheave so that both loose ends are on the climber side of the ladder.

Splicing Procedure

1. Include operation of come along and tensioning requirement
2. Open the overlap welding kit.
3. Securely fasten welder to the ladder at shoulder level
4. Use the come-along to tension the loose ends of the belt. Using the dynamometer, apply tension according to the following table:

degC	Load (kg)	Load (lbs)
-10	119.7	263
-5	104.4	230
0	89.1	196
5	81.9	180
10	74.7	164
15	70.65	155
20	66.6	147
25	62.55	138
30	58.5	129
35	56.25	124

5. Examine the light green coated surface of the heating element for scratches. A scratched and damaged coated surface can affect weld results; heating element may need replaced.
6. On the front of the control box is an on/off switch, indicator light and fuse holder. On the left side of the control box is a power supply line and thermocouple. Plug the power supply line and thermocouple into the left side of the control box. On the right side of the control box is the main power cord that is plugged into an 110/120v electrical power source.
7. On top of the control box is the temperature control dial. Set the control dial at 500°F. Turn the power switch to the on position. The large red indicator light will stay on. On the temperature control dial, an indicator light will come on and remain on while element is heating.



WARNING: Do not start welding until this light goes out the first time.

This indicator light will then fluctuate on and off as the heating element maintains the correct welding temperature.



NOTE: If light green coated surface contains polyurethane residue, use a clean, dry cloth to remove it.



WARNING: Do not use any object to scrape polyurethane from surface.

8. Turn large wing nut several turns counter-clockwise until it stops. Pull back on red knob on front (sliding) die. Push down on black knob on top of welder and pull brass pin out to release coated heating element. Swing heating element away from die area.
9. Insert a black star-shaped thumbnut into each die and finger-tighten as in Figure 1.

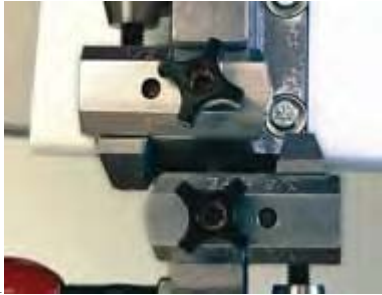


Figure 1

10. Using the cutting shears provided, cut each end of round belt at a 15° angle as in Figure 2.

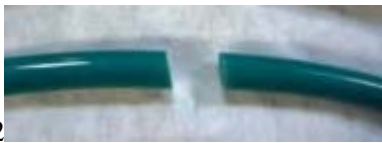
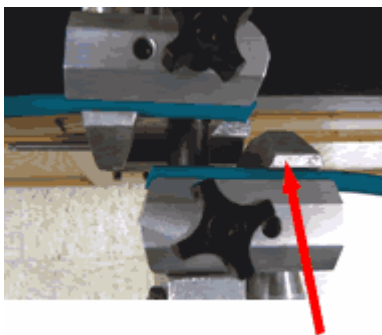


Figure 2

11. Slide end of the round belt into the rear die until it overhangs approximately 1/16" and angle on belt is parallel with angle on die. Clamp the belt into position by lightly tightening the knurled thumbnut finger tight. On the front (sliding) die, the flat side of the holding clamp must face up. If not, turn knurled thumbnut counter-clockwise and remove. Push holding clamp from base and rotate clamp 180° until flat side is up. Reassemble knurled thumbnut. Slide end of belt into front die and position exactly same as rear die. Lightly finger-tighten knurled thumbnut. See Figure 3.



CAUTION: Make sure belt does not contain any twist.



Holding Clamp

Figure 3

12. Swing the green coated heating element into position between dies. Pull out on brass pin, push down and hold black knob (on top of welder) and release brass pin. This locks heating element into position.

13. Turn large wing nut clockwise, moving it forward until both overlapping surfaces contact the coated heating element. Continue turning large wing nut as belt ends melt and material is squeezed out of weld area. Continue turning large wing nut until it stops. See Figure 4.



WARNING: do not over tighten.



Figure 4

14. After a maximum of 20 seconds, turn large wing nut counter-clockwise 3-4 full turns. Pull back on red knob until the front (sliding) die stops. Push down on black knob on top of welder; on back of welder, slightly push on the two guide rods to move coated heating element. Pull brass pin out and release coated heating element. Swing heating element away from die area. Immediately push red knob forward and quickly spin large wing nut clockwise until stop is reached.

Important: This sequence must be done very quickly.

15. While weld is cooling, use a clean, dry cloth to wipe excess polyurethane material from coated heating element. It is important that heating element be cleaned between every weld.
16. After a minimum of one minute, turn large wing nut counter-clockwise several turns. Loosen both knurled thumbnuts several turns and pull back on red knob on front (sliding) die. Remove belt from welder, and using special flash cutters trim weld flash from belt, Figure 5.



NOTE: The flash cutters have been designed specifically for trimming polyurethane and are not to be used for cutting metal, wire, etc.



Figure 5



WARNING: Allow the belt to cure for a minimum of ½ hour prior to installing, tensioning or putting strain on the belt weld.



Figure 9

EasyClimb Controller



The EasyClimb Controller assembly includes an integrated rope grab and carabiner to connect it to the user's harness at the front D-Ring. The EasyClimb Controller must be charged for 24 hours using the enclosed 12Vdc wall transformer. When not in use the EasyClimb Controller may be safely placed on charge for an unlimited period.

3.3 Commissioning

After installation of drive, top sheave, controls and belt, carry out the following steps to commission the installed IBEX™ 1000 climb assist system.

EasyClimb Controller

1. Review section 4.2 below on the operation of the EasyClimb Controller.
2. Press STOP: verify all 4 LEDs flash once.
3. Press and hold STOP, press UP: verify one LED flashes and sequentially cycles in the up direction. Release STOP.
4. Press and hold STOP, press DOWN: verify one LED flashes and sequentially cycles in the down direction. Release Stop.

5. Wait at least 30 sec after last button operation then repeat 2.

System

(Do not connect EasyClimb Controller to belt)

6. Verify belt tension is set according to the table in section 3.2.
7. Connect power to the unit.
8. Set key to Inspect and turn on the power: Verify that the belt runs down (at nominally 60 fpm)
9. Set key to run. Verify belt stops.
10. Press Up (EasyClimb Controller): Verify belt runs up slowly for 2 to 3 seconds.
11. Set EasyClimb Controller to 50 lbs in UP and DOWN direction.
12. Attach rope grab to safety wire.
13. Apply a load to the harness attachment point of the EasyClimb Controller.
14. Press UP (twice if needed): Verify that the belt moves up at a speed that varies inversely with the load applied to the EasyClimb Controller.
15. While load is applied and the belt is running, press STOP: Verify that the belt stops and does not respond to load.
16. Press the DOWN button (twice if needed).
17. Apply a load to the EasyClimb Controller (there may be a short delay in start): Verify that the belt moves down at a speed that varies with the load applied to the EasyClimb Controller.
18. Take all load off the EasyClimb Controller. Verify that the belt stops, and restarts if load is reapplied within 10 seconds, otherwise remains stopped.
19. Press DOWN (twice if needed).
20. Before the 10 second delay completes, apply a load to the EasyClimb Controller (there may be a short delay in start): Verify that the belt moves up at a speed that varies with the load applied to the EasyClimb Controller.
21. While load is applied, press STOP: Verify the the belt stops and does not respond to load.
22. Angle the EasyClimb Controller down and press UP multiple times: Verify that the belt remains stationary.

Ride Quality

23. Cycle the power switch to ensure the system is reset.
24. Connect the rope grab to the belt and the carabiner to the harness.
25. Test ride to ensure proper function of system.

4. IBEX™ 1000 OPERATION INSTRUCTIONS

4.1 IBEX™ 1000 Features



WARNING: The IBEX™ 1000 climb assist system is not a safety device and must only be used in conjunction with an independent personal fall arrest system.

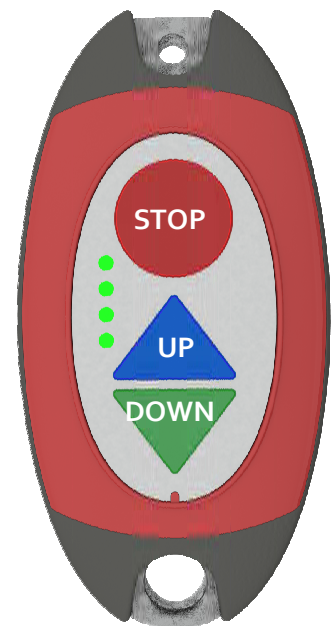
4.2 Use of the EasyClimb Controller

To Set Level of Assistance

1. Press and hold the STOP button while:
 - a. Press and release the UP button to set the desired level of assistance for ascent;
 - b. Press and release the DOWN Button to set the desired level of assistance for descent.
2. When the desired levels are set, release the STOP button.
3. At first press, the indicator shows the current setting.
4. With further presses, the indicators will cycle.

Note: To ensure safe operation of the system;

- Pressing the STOP button prevents the assist motor from operating while setting levels.
- Assist levels cannot be set during motor operation. Press STOP before attempting to change assist level settings.
- Assist levels are retained after setting.



To Ascend

1. Couple the EasyClimb Controller between the harness chest ring and the rope grab clipped to the belt.
2. Press and release the UP button. The indicator flashes to show the set level of assist.
3. The belt will slowly start.
4. When the assist is felt, begin climbing up.
5. To stop, stop climbing then press the STOP button.



NOTE:

- If the level of assist does not reach 20 lbs within 1 second, the motor will stop. Restart by pressing the UP button as above.

- A stop delay is included and is preset to 10 seconds.
- The LED will show the selected level of assist during the climb.

To Descend

1. Connect the EasyClimb Controller between the harness chest ring and the rope grab clipped to the belt.
2. Press and release the DOWN button. The indicator flashes to show the set level of assist.
3. Begin climbing down.
4. To stop, stop climbing or press the STOP button.



NOTE:

- If the load in the EasyClimb Controller does not reach 20 lbs within 15 seconds, the motor will stop. Restart by pressing the DEC button as above.
- The LED will show the selected level of assist during the climb.

To Stop

1. Stop climbing and the motor will disengage after 2 seconds, or press the STOP button to stop immediately.



NOTE: You may have your weight on the EasyClimb Controller before pressing UP or DOWN.

To Shut Down the System

To shut down the system, put the power switch located on the electrical control box in the OFF position.

Miscellaneous

Often, during the ascent, it is necessary to momentarily stop, for example to open or close a hatch. For convenience, a delay is automatically set when the climber stops climbing and the climber remains supported. Provided the ascent resumes within 10 seconds, it is not necessary to press the UP button again, otherwise press UP and resume the ascent.

Similarly, during descent, the climber may stop for a delay of 15 seconds before resuming the climb before it is necessary to press the DOWN button. Otherwise press DOWN and resume the descent.

Because the climber is remote from the motor controls, and to ensure that the system responds to the climber's intentions and does not operate from unintended actions, it is necessary to press the UP or DOWN button to initiate a climb.

4.3 Safety

To ensure that operation of multiple EasyClimb Controllers does not cause unexpected actions, each EasyClimb Controller has a unique serial number. Concurrent operation of more than one EasyClimb Controller in a tower will cause the motor to stop and remain stopped for 30 seconds.

To prevent erroneous operations, it is only possible to communicate with the motor drive while the EasyClimb Controller is pointed up.

To ensure that the EasyClimb Controller remains within its calibration limits, a procedure to recalibrate is included in section 5.1. The user is strongly encouraged to understand the procedure and periodically carry out recalibration.

5. IBEX™ 1000 MAINTENANCE INSTRUCTIONS

The IBEX™ 1000 requires minimal maintenance. All bearings are sealed and do not require lubrication.

5.1 Periodic Inspection

Belt Inspection

As a moving part, the round assist belt is subject to wear with use. Visual inspection of the belt for abrasion or other damage or weld separation should be performed regularly. Closer inspection of the entire belt length should be performed once annually. Turning the key on the electrical control box will engage the maintenance mode. In this mode, the motor will drive the belt at a slow speed. While at the ladder base, allow the belt to pass through the inspector's hand while also visually inspecting the belt as it moves.

Surface scarring from use of rope grabs is normal and will not affect performance or safety of the belt. However, if excessive scarring or abrasion against the ladder or platforms is discovered, the worn section may be removed and a replacement section spliced into place according to the belt splicing procedures in section 3.2.

Recalibration of EasyClimb Controller

During use it is possible that the EasyClimb Controller calibration will change from excessive loads being applied. The following procedures will allow re-calibration without the aid of additional equipment.

Adjustment of ZERO:

1. Ensure that there is no load applied to the EasyClimb Controller other than the integrated rope grab.
2. Point the EasyClimb Controller vertically down so that the stop button is below the other buttons.
3. Press the STOP button and hold it for 5 seconds, then release.
4. The ZERO point is now calibrated.

5.2 Troubleshooting

Symptom	Consider
Belt weld is not correct as shown in Fig 9A	<ul style="list-style-type: none"> Review the belt splicing procedure in section 3.2 Ensure that the temperature controller light has cycled at least once before applying the iron. Ensure that the temperature controller light has cycled at least twice before removing the iron.
Belt slips on the drive sheave	<ul style="list-style-type: none"> Check for oil on the belt or drive sheave. Use a dry cloth to clean the belt using maintenance mode. Will occur if the belt tension is too low during installation. See tension table in section 3.2.
Level of support provided seems low or high	Carry out the calibration procedure in section 5.1.
EasyClimb Controller LEDs do not indicate	Place the EasyClimb Controller on the charger for at least 24 hours
Belt stops when the EasyClimb Controller is in the upper zone of the tower	Verify that the antenna is connected, correctly aligned and is not damaged.
Belt will not respond to controller commands	Ensure that the EasyClimb Controller is pointing up with the stop button highest.
Belt stops at random times and will not operate again for 30 seconds	Check to see if a second EasyClimb Controller is causing interference.

5.3 Replacement of Damaged Components

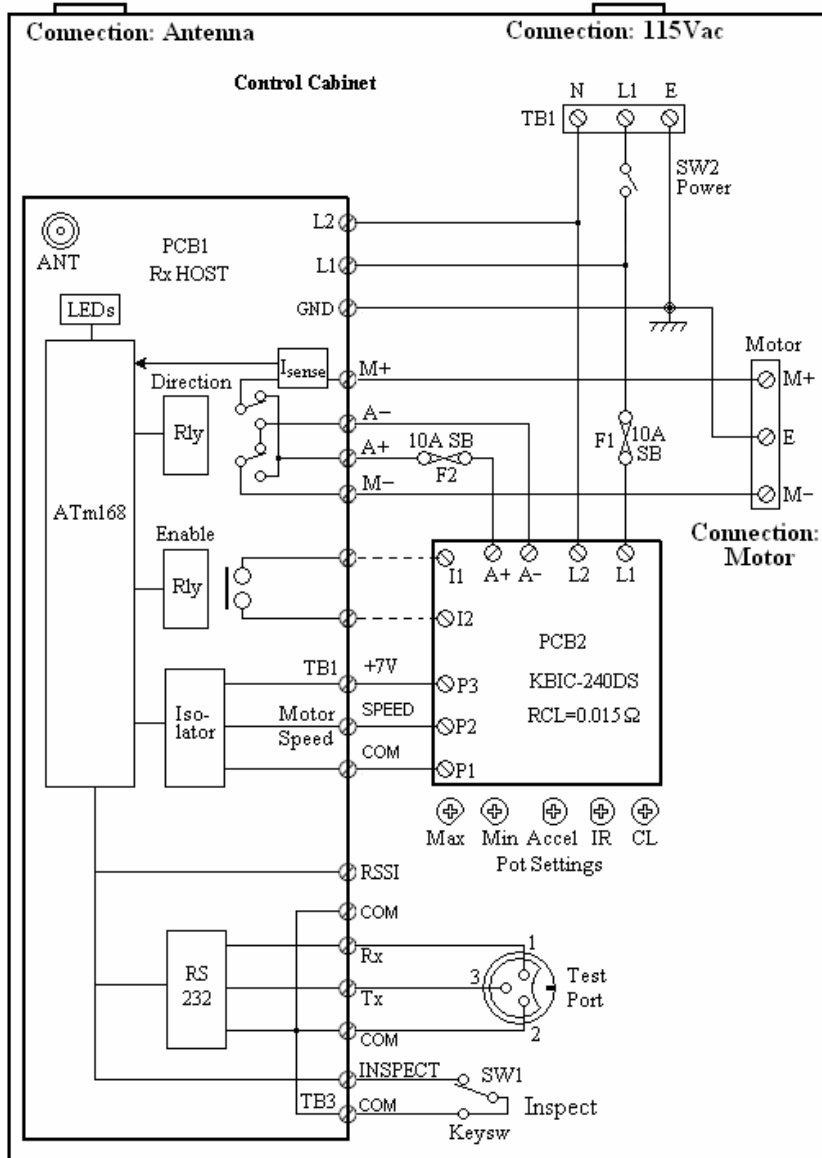


WARNING: Only use parts supplied by Power Climber Wind. Use of non-authorized parts will void the warranty.

Service of the EasyClimb Controller and electrical control box shall be performed by Power Climber Wind by factory return. During the warranty period a replacement controller or control box will be supplied if required. See the spare parts list in section 5.5 for replacement items.

Replacements are to be made following the installation procedure of section 3.

5.4 Electrical Schematics and Wiring Diagrams



5.5 Spare Parts List

Part No.	Description	QTY
702299	Belt splicing toolkit (required for installation and maintenance)	
702953	Tool box	1
702954	Belt cutter	1
702947	Rope grabs	2
702956	Come-along	1
702957	Welding tool	1
702958	Dynomometer	1
702959	Thermometer	1
702960	Pipe hook	1
702946	Carabiner	1
Start-up Spares Kit (recommended per 50 units installed)		
702301-1	Round reinforced polymer belt	500 ft
702303-1	1/2 HP Worm-gear PMDC motor	1
702963-1	Belt stabilizer ladder attachment kit (4 per kit)	1
702941-1	Receiver and motor drive control box	1
Additional Controller and Accessories		
702952-1	EasyClimb Controller (w/o rope grab)	1
702947-1	Spring-loaded rope grab	1
702946-1	Oval twistlock carabiner	1
702945-1	Charger, 12V	1

5.6 Customer Service

For service requests or spare parts orders, contact Power Climber Wind Customer Service in the U.S. or Canada at CustomerService@PowerClimberWind.com or via telephone at (877) PCWIND1.