

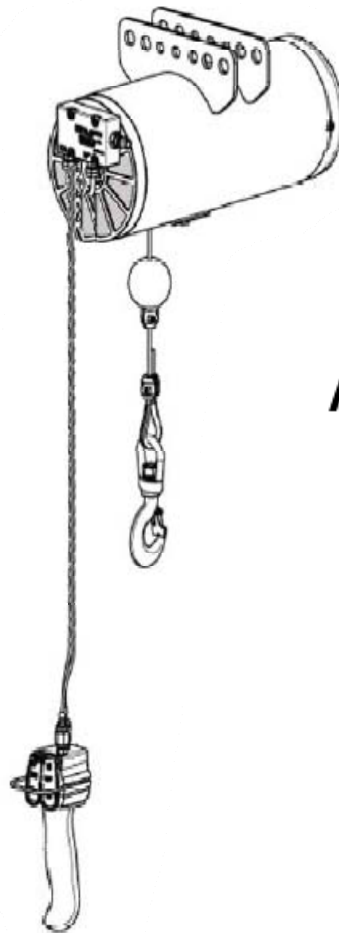


UNIFIED INDUSTRIES, INC.

A Columbus McKinnon Company

AIR BALANCER

U_B-Series



INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

WARNING

Never use the Air Balancer for lifting or lowering people.

Supply this manual to the user.


Read this manual before installation, operation or maintenance.

Keep this manual available.



SAFETY ALERT SYMBOL AND ALERT SIGNS

Please read this manual carefully and follow its instructions.

The SAFETY ALERT SYMBOL(), WARNING, CAUTION, and NOTE



This SAFETY ALERT SYMBOL is used to call your attention to items or operations that could be dangerous to you or other persons using this equipment.

Please read these messages and follow these instructions carefully.



WARNING

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



CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury, damage or destruction or the equipment and others.

NOTE

NOTE indicates a special instruction in operation or maintenance



Table of Contents

1. Safety Instructions	1
2. Explanation of the product	5
3. Checks and Instructions before installation	6
3.1 Checks of the Product	6
3.2 Instructions on Working Conditions	7
4. Installation	7
4.1 Installation	7
4.2 Before Air Connection	8
5. Hoisting and Test Run	9
5.1 Setting Balancer Speed	9-10
5.2 Check of the Lifting Height	10
5.3 Other Checks	10
6. Checks before Operation at the beginning of each shift	10
6.1 Check before startup	10
6.2 Check by idling Operation	11
6.3 Check by Load Operation	11
7. Periodic Inspection	11
8. Maintenance and Inspection	12
8.1 Inspection	12-14
8.2 Storing the Air Balancer	14
8.3 Troubleshooting	15
9. Wire Rope Setup	16-17
9.1 Wire Rope Replacement	18
10. Parts List	
10.1 U_B-132 Unit (U_B-132-079)	19
10.2 U_B-220 Unit (U_B-220-118)	20
10.3 U_B-331 Unit (U_B-331-079)	21
10.4 U_B-485 Unit (U_B-485-076)	22
10.5 UAB Manifold Unit (99025)	23
10.6 Suspension Hook Unit (99100)	24
10.7 Reeved Hook Unit	25
10.8 Inspection and Maintenance Sheet	26



1. Safety Instructions

If the Air Balancer is not used correctly a serious accident may occur, such as dropping the load or the Air Balancer itself. Before installing, operating, controlling, inspecting of Air Balancer, read and understand this instruction manual. Until understanding of all equipment terminology, safety information, caution and warning, do not use the Air Balancer .

1.1 General Instructions

WARNING

- Never use the Air Balancer to lift or lower people.
Also never carry the loads over people or around people.
- Before installing, operating, controlling, inspecting of the Air Balancer, read and understand this instruction manual.
- After reading, keep this manual available for maintenance and inspections.
- Always check the supporting member from which the Air Balancer is suspended is strong enough to support the weight of the Air Balancer plus the weight of the maximum capacity, etc.
The customer has the responsibility for this.

1.2 Instructions for safe operation

If there are any differences between instruction manual and the standard of your company, give the priority to stricter standards from either of both.

1.2.1 General handling

WARNING

- Never operate the Air Balancer unless the contents of this manual and caution plate (warning label) are completely known.
- Never operate the Air Balancer nor sling a load unless you were trained in safety rules and in operating manner of the Air Balancer.
Never allow untrained persons to do so.
- Never remove or deface any nameplates, caution plates or warning labels, which are attached to the Air Balancer.
- Always check the Air Balancer before each shift, and inspect it periodically.
- Never operate the Air Balancer if you are not physically fit to do so.
The operator must have good hearing, vision and depth perception.
- When any instruction signs put on the push button switches such as EQUIPMENT BEING INSPECTED or DO NO RUN, never operate the Air Balancer until the sign is removed by the designated person.



1.2.2 Installation

⚠ WARNING

- Always employ specialists or well-trained persons for installation.
- Never install the Air Balancer in any environments, which is out of specifications.
For example, the Air Balancer should not be exposed to rain or water.
- Always install stoppers at the end of the rails for traveling or traversing.
- Always check the supporting member for the Air Balancer has enough strength.
- Make the Air Balancer able to swing freely by using the Suspension hook or the fitting.
* Never fix the Air Balancer.

⚠ CAUTION

- Never operate the Air Balancer when it is placed on the floor.
- Never operate the Air Balancer with the slackened wire rope.
- Only operate the Air Balancer when it is hanging.

1.2.3 Air Pressure

⚠ WARNING

- Never set the air pressure over 0.7MPa { 7kgf /cm², 100psi }.
- If it is necessary, reduce and set the air pressure to the requirement of working air pressure.

⚠ CAUTION

- Never use the lubricator in air supply line.
Oil will damage internal components. Never use any kind of oil.
- Never operate the Air Balancer without filter and regulator.

NOTE: The actual Load Capacity of the balancer is based on plant air pressure and the recommended 80% optimal load capacity.
Example: The plant air pressure is 65 psi using 331lb air balancer.
Formula as follows: (331lb x 0.65 air supply x .80 optimal load) = **172lb Load Capacity**



⚠ WARNING

- Never lift a load greater than the maximum capacity of the Air Balancer.
- ★ The maximum capacity is marked on the Air Balancer body.
- Never stand on a suspended load.
 - Never apply and use the Air Balancer for transporting people.
- Never stand and walk under the suspended loads, and keep out of its area of projection.
 - Never place hands, feet and etc., under or between suspended loads.
- Never operate the Air Balancer when anyone is in the traveling area of the load.
- Always check there are no objects in the ways of the load or the load hook when moving the Air Balancer.
- Never carry a load over people.
- Never leave a load suspended for any extended period.
- Always pay attention to the load at all times when operating the Air Balancer.
- Never swing the load or the load hook when moving the Air Balancer.
- Never remove the load while the wire rope is tensioned.
- Never use the Brake System as means of stopping the wire rope.
 - It is for emergency to prevent the load hook rapid snapping back.
- Never pull a load at an angle.
 - Never lift a load when the load hook is not over the load's center of gravity.
- ★ Always move the Air Balancer over the load's center of gravity before lifting.
- Never allow the wire rope to touch structures having a sharp edge.
- Never use the wire rope of the Air Balancer as a sling.
- Never do earth lifting (lifting locked loads).
- Never turn over a suspended load.
- ★ Always employ special equipments in case of turn over work.
- Always check movement of the push button switches before operation.
 - Never operate the Air Balancer if the push button switches do not move smoothly.
- Stop the Air Balancer immediately when up / down operations are contrary to the indications marked on the push button switches.
- Never operate the Air Balancer when damaged or abnormal sound / vibration occurs.
- Never operate the Air Balancer with the wire rope in any of the following conditions.
 - ① Kinked, deformed or corroded.
 - ② A The number of broken wires or the reduction of diameter reaches the service limit.
- Never perform cutting work on a load suspended by the Air Balancer.
- Never perform electro-welding work on a load suspended by the Air Balancer.
- Never use the wire rope of the Air Balancer as a ground for welding.
- Never attach a welding electrode to the wire rope of the Air Balancer.
- Never lift any single load with 2 or more Air Balancers.
- Never lock the push buttons switches.
- ★ The Air Balancer must be operated by the operator himself / herself at all times.
- When moving a load with a plain trolley, never push the wire rope but the push the load itself.
 - Never pull the load.



1.2.4 Operation and Handling

CAUTION

- Never use the hook with a damaged or malfunctioning hook latch.
- Always operate the Air Balancer carefully during lifting and lowering operations.
Never start, stop or reverse the Air Balancer suddenly.
- Never allow the suspended load to touch the nearby structure or power lines, etc.
- Never jerk the hose of the push button switches nor catch it on the nearby structure.
- Never allow the Air Balancer or trolley to collide with the I-beam stopper or the structure.
- Always check the load hook can swivel smoothly before operating the Air Balancer.
- Always position the slings at the center of the load hook.
- When starting to lift, stop the Air Balancer once as the wire rope becomes tensioned.
- * Never jerk the Air Balancer. Carefully take up the slackened wire rope.
- Always check the load-lifting height of the Air Balancer is enough for required work.

1.2.5 Maintenance, Inspection and Alterations

WARNING

- Never alter the Air Balancers or its accessories.
- Always use genuine parts for replacement.
- Always shut off the air supply before carrying out maintenance, inspection or repair.
- Always employ specialists or well trained persons for maintenance, inspection and repair.
- Always remove the load from the Air Balancer before maintenance, inspection or repair.
- Always disassemble the Air Balancer on the floor.
- If any problems are detected during maintenance or inspection, never use the Air Balancer but correct and repair the problems immediately.
- Periodically, inspect the Air Balancer thoroughly and replace any worn or damaged parts.
- Stretched, worn or damaged hooks should be discarded.
Never attempt to repair it, just replace it with a new hook.
- Always put up an instruction sign ("EQUIPMENT BEING INSPECTED", "DO NOT OPEN THE VALVE", etc.) before carrying out maintenance, inspection or repair.
- Never do anything if you have any questions about the Air Balancer, please do not hesitate to contact you dealer or us.



⚠ CAUTION

- Follow the lubrication instructions.
- Never operate the Air Balancer without regulator and filter. (Never use lubricator)
- Always hang the Air Balancer when carrying out test run after maintenance or repair.
- * Never operate the Air Balancer with the slackened wire rope.
Never operate the Air Balancer when it is placed on the floor.

2. Explanation of the product

2.1 Specification

● Single Wire Rope Units (Air Pressure 7kg_f/cm²)

Model	Capacity		Lift		Dia. x L(B) of Body		H		Net Weight	
	kg	lbs	mm	in	mm	in	mm	in	kg	lbs
U_B-132-079	60	132	2000	79	155×392	6.1×15.43	600	23	23	51
U_B-220-118	100	220	3000	118	260×400	10.24×15.75	700	28	42.5	94
U_B-331-079	150	331	2000	79	260×400	10.24×15.75	700	28	47	105
U_B-485-079	230	485	1950	79	310×400	12.21×15.75	750	30	50	110

● Wire Rope Units (Air Pressure 7kg_f/cm²)

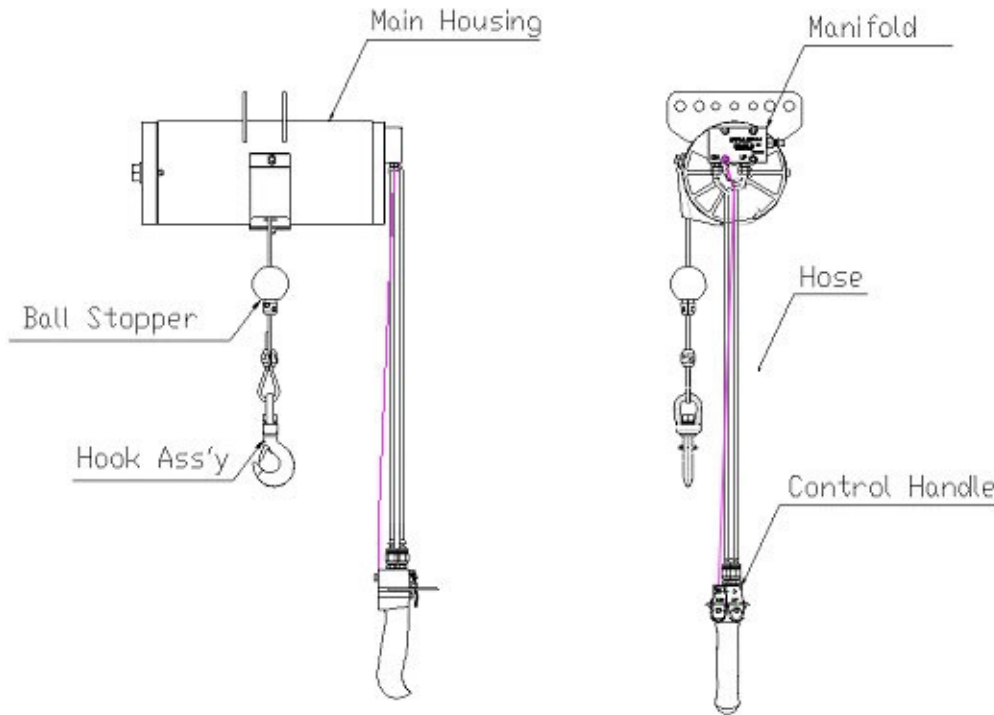
Model	Capacity		Lift		Dia. x L(B) of Body		H		Net Weight	
	kg	lbs	mm	in	mm	in	mm	in	kg	lbs
U_B-440-59R	200	441	1500	59	260×400	10.24×15.75	700	28	47	104
U_B-440-118T	200	441	3000	118	2-260×400	10.24×15.75	700	28	92	203
U_B-662-39R	300	661	1000	39	260×400	10.24×15.75	700	28	45	99
U_B-661-79T	300	661	2000	78	2-260×400	10.24×15.75	700	28	90	198
U_B-970-39R	440	970	1000	38	310×400	12.21×15.75	750	30	56	124
U_B-970-79T	440	970	2000	76	2-310×400	12.21×15.75	750	30	110	243
U_B-882-59TR	400	882	1500	59	2-260×400	10.24×15.75	700	28	95	209
U_B-1323-39TR	600	1323	1000	39	2-260×400	10.24×15.75	700	28	92	203
U_B-1940-39TR	880	1940	1000	39	2-310×400	12.21×15.75	750	30	115	254

The Plug for 3/8" coupler is provided at the air supply inlet.

- Working conditions
 - Application area : Indoor and normal atmospheric conditions
 - Temperature range : -10℃ to +50℃



2.2 Description of each part



2.3 Explanation of the Brake System

The Brake System prevents the load hook from rapid snapping back when the load is detached unexpectedly.

If the wire rope is wound rapidly, ratchet wheel is operated by centrifugal force. This operation stops the wire drum turning and the wire rope winding.

Push the down button switch for release this operation. And the ratchet is released, air inside the Main Housing comes out, and wire rope can be pulled out.

If wire rope cannot be pulled out, pull down the wire rope by hand, pushing the down button switch.

Never use the Brake System as means of stopping the wire rope.

It is for emergency to prevent the load hook rapid snapping back.

3. Checks and Instructions before Installation

3.1 Checks of the Product

- Check the delivered Air Balancer is what you ordered (check the name plate).
- Check there was no damaged or deformation on the Air Balancer during transportation.
- Check the pressure of the available air supply corresponds to the working air pressure of the Air Balancer.



3.2 Instructions on Working Conditions

 **WARNING**

- Never use the Air Balancer at a temperature below -10°C or above $+50^{\circ}\text{C}$.

 **CAUTION**

- Do not install and leave the Air Balancer outdoors.
If it is necessary to use the Air Balancer outdoors, always make a shelter with a roof for housing the Air Balancer.
- Under hostile environments such as high temperatures, high humidity, acidic, corrosive and / or extremely dusty atmospheric conditions, the mechanical parts of the Air Balancer may be seriously damaged (for example, corroded). Therefore, frequently check the Air Balancer is maintained in normal conditions at all times.

4. Installation

4.1 Installation

 **WARNING**

Always check the supporting member from which the Air Balancer is suspended is strong enough to support the weight of the Air Balancer plus the weight of the maximum capacity, etc.

The customer has responsibility for this.

 **CAUTION**

Never operate the Air Balancer when it is placed on the floor (never lay it down).

Only operate the Air Balancer when it is hanging.

Make certain the Air Balancer is properly installed.

A little extra time and effort in doing so can contribute a lot toward preventing accidents and helping you get the best service possible.

The supporting member for the Air Balancer should have successfully passed an inspection for the applicable safety standard.

- Check the suspension hook is correctly rigged onto the supporting member and the hook latch is correctly closed.
- Never use a supporting member that suspends the Air Balancer at an angle.



4.2 Before Air Connection

WARNING

Always keep the working air pressure no greater than 0.7Mpa {7kgf.cm2, 100psi}. If it is necessary, reduce and set the air pressure to the requirement of working air pressure.

Check that sufficient air can be supplied to the opening of the Air Balancer.

Compare the air supply from the compressor to the air consumption of the Air Balancer. (See Chapter 2 "Specifications")

For a pipe of excessively small diameter of great length the pressure drop can become large enough to prevent the specified

performance. Use an air hose with an inside diameter is a least 3/8" (9.5mm).

Before connection the air hose or pipe to the Air Balancer, be sure to flush or blow out with air to prevent the invasion of foreign

matter (dust, etc.) into the manifold and the main housing.

Compressed air supplied to the Air Balancer should be free from moisture or reign matter. Install a filter to eliminate them from air

supply.

Never use the lubricator in air supply line. Oil will damage internal components. **Never use any kind of oil.**

Connect the air filter and regulator as close to the Air Balancer as possible. And install a dump valve (drain valve) at the lowest

point in the piping.



5. Hoisting and Test Run

5.1 Setting Balancer Speed and Counter Balance

UAB-Models

1. Install Manifold block and connect main air supply to right side port of manifold (A). **DO NOT Turn on Air Supply**
2. Install up/down pendant to manifold (Fig.1)
3. Install load hook and handling device to wire rope (be sure that wire rope/ball stop is not all the way up top of the balancer)
4. Turn on main air supply (Caution: the rope may raise/lower quickly up into the balancer depending on the load). Adjust regulator to required air pressure. **Note:** To lift balancer rated load 100 PSI is necessary.
5. Turn **counter-balance** screw (C) clockwise slowly to go UP, or counter-clockwise to go DOWN until end effector is suspended stops moving in either direction.
6. Place part on end effector and repeat Step 5.

To Adjust UP/DN Speed:

1. Adjust DN flow control (D) on manifold counterclockwise to increase speed, clockwise to decrease speed, until desired speed is achieved.
2. Adjust UP flow control (B) on manifold counterclockwise to increase speed, clockwise to decrease speed, until desired speed is achieved.

Notice: When wire rope is winding, air is entering the balancer through both the up and down flow controls. Therefore, down flow control also affects the up speed when it is set for a minimal down speed. At the initial operation, repeat up/down operations several times at low speed, then to the full-speed operation.

Troubleshooting

Balancer is in the up position with air on and will not go down when DN pendant button is pressed?

- Adjust counter balance screw (C) counter clockwise.

Balancer rope will not go up or down? **Brake is Engaged**

1. Turn off air pressure
2. Press DN button on the pendant until rope releases.
3. Turn back on plant air.

If there is a wide differential of end effector empty vs. end-effector with part you will need to adjust counter-balance more to the heavier load.





UZB models:

Prior to performing operational adjustments or servicing make sure air supply is off and wire rope is slack.

1. Connect regulator to balancer.
2. Rotate regulator adjustment knob counterclockwise until it stops.
3. Turn on main air supply. Adjust regulator to required air pressure.
4. Rotate adjustment knob clockwise slowly until wire rope begins to raise, move to the full up position. (Ensure the Brake does not engage - 132 lb. units only).
5. Install load hook and tooling or fixture to wire rope in the required position.
6. Rotate adjustment knob clockwise until load is suspended.
7. The correct setting will require equal effort to lift and lower the load.
8. If unit is required to raise the load out of the way, turn adjustment knob clockwise until desired speed is achieved.
9. Tighten jam nut just above adjustment knob to maintain proper setting.

5.2 Check of the Lifting Height

⚠ WARNING

Never use the ball stopper as a means of stopping the wire rope. If the ball stopper collides with the main housing frequently, the wire rope will be damaged and the suspended load may drop, causing serious danger.

5.3 Other checks

Lift the maximum capacity a few inches off the floor and check ability of the brake to stop and hold the load without excessive drift.

Check the air pressure because maximum capacity is changed by it.

In case of using the Air Balancer with the trolley, traverse the trolley over the entire length of I-beam with the maximum capacity suspended a few inches off the floor.

Check the condition of I-beam and the length of the air hose.

6. Checks before Operation At the beginning of each shift

⚠ WARNING

- Always execute the following checks at the beginning of each shift.
- If a malfunction occurs during the operation of the Air Balancer, stop operation immediately and take the necessary steps to rectify the problem.
Never operate the Air Balancer if damaged or malfunctioning.
This is serious hazard and could result in personal injury or death.

6.1 Check before Start up

- (1) Check the wire rope is not kinked, deformed, damaged, or worn.
See Chapter 8, 2 "(2) Inspection of Wire Rope and Service Limit".
- (2) Check the load hook is stretched or damaged and the hook latch is in the normal position.
- (3) The wire rope edge must come out enough from the clamp.
- (4) Check the trolley wheel track the rails properly and the wheels and rails are not worn.
- (5) Check the lifting sling (suspension fastening) is not damaged or worn.



6.2 Check by Idling Operation

- (1) Check the indications marked on the push button switches correctly show the actual directions of up / down operations.
- (2) Check the ball stopper is not contact with the Main Housing.
- (3) Check the Brake System does not work during required work.

6.3 Check by Load Operation

- (1) Lift the maximum or near the maximum capacity a few inches off the floor and check ability to stop and hold the load without excessive drift.
- (2) Check hoisting speed can be changed from low to high speed by controlling the pushing force on the push button switches.
- (3) Check the Air Balancer is not abnormally noisy or vibrating.

7. Periodic Inspections

WARNING

- Always put up instruction sign (" EQUIPMENT BEING INSPECTED", "DO NOT RUN", etc.) on the push button switches before carrying out inspections.
- Periodically, inspect the Air Balancer thoroughly and replace any worn or damaged parts.
- Always shut off the air supply before carrying out inspections.
Exceptions are checks or inspections of the push button switches during that the Air Balancer should be operated.

Preparing a special table for inspection is recommended.

■ Monthly Inspection

Inspect the Air Balancer at least once a month.

Correct and repair any problems, which are detected.

- Required interval for inspection depends on the operating environment, operating frequency and loading conditions of the Air Balancer.
Therefore, make the inspection interval shorter according to your operating condition.
- For inspection items and methods, see Chapter 8, Section 8.2 "Inspection".

■ Service Limit of Parts

If any part is found to be worn beyond its service limit in the monthly or other inspections, never reuse it.



8. Maintenance and Inspection

WARNING

- Never alter the Air Balancer or its accessories.
- Always remove the load from the Air Balancer before maintenance, inspection or repair.
- Always put up an instruction sign ("EQUIPMENT BEING INSPECTED", "DO NOT OPEN THE VALVE", etc.) before carrying out maintenance, inspection Or repair.
- Always shut off the air supply before carrying out maintenance, inspection, or repair.
Exceptions are checks or inspections of the push button switches during that the Air Balancer should be operated.
- Always employ specialists or well trained persons for maintenance, inspection and repair.
- Always disassemble the Air Balancer on the floor.
- Always use genuine parts for replacement.
- Replace any parts damaged or worn beyond its service limit.

Always use the Air Balancer correctly for safety and getting the best service.

8.1 Inspection

(1) Inspection of Hook and Service Limit

WARNING

- Never repair the hooks.
- Always replace a stretched, worn or damaged hook with new one.

■ Inspection on Hook Opening, Cracks and Wear.

If any of the following conditions apply to the inspected hook, never reuse, always replace with new one.

- The hook opening is visibly stretched, or the opening dimension is different from the specified.
- The hook is deformed or cracked.
Carefully check for any bends or cracks on the hook shank.
- Wear on the hook saddle, where the lifting sling (suspension fastening) rests, reaches the service limit.
- The hook latch is damaged or malfunctioning.



■ Hook Opening Dimension and Wear Limit

For hook opening and dimension information please refer to the Warning and Application Instructions that are supplied to the hook upon purchase of balancer.

(2) Inspection of Wire Rope and Service Limit

Extend the wire rope to the maximum cable travel and then inspect it.

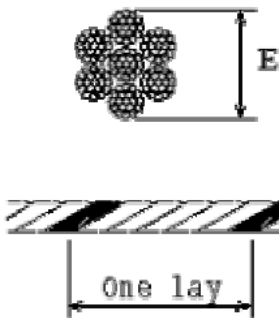
■ Never use the wire rope having any one of the following defects.

- Kinked, deformed or corroded.
- The number of broken wires reaches the service limit.
- The reduction of diameter reaches the service limit.



■ Wear Limit and Limit of Broken Wires.

The number of broken wires in on lay should be no greater than 10% of all wires.
 In addition, the number of broken wires which are close to each other and in the same strand should be no greater than 5%.



(mm)	Standard Dimension	Service Limit
E	4.76	2.95

Number of all wires	Limit of broken wires	
	In one lay 10%	Close to each other and in the same strand 5%
133 (7x19)	13	7



■ Wire rope edge

- Is the Thimble loose?
- Is the Bolt of Clamp loose?
- Is the clamp damaged?

■ Replacement Parts

Always use a manufacturer's replacement wire rope.

(3) Inspection of Main Housing

- Are there any flaws, cracks, or deformation?
Carefully check the part where the suspension hook is attached.
- Are the bolts loose?

(4) Inspection of Manifold and Control handle

- Are there any flaws, cracks, or deformation or wear on the O-rings?
- Are the springs decayed, cracked or flawed?
- Is the hose damaged, or is the connection part loose?
- Do the push button switch correctly return to the neutral position after being pushed?
- Are the bolts loose?

8.2 Storing the Air Balancer

If the Air Balancer is to be stored for a long time, store the Air Balancer in dry location and avoid high or low temperature conditions.



8.3 Troubleshooting

⚠ WARNING
If a malfunction occurs during the operation of the Air Balancer, stop operation immediately and take the necessary steps to rectify the problem.

⚠ CAUTION
Careless repairs can cause damaged to the Air Balancer or personal injury. Therefore, be careful but through when making repairs.

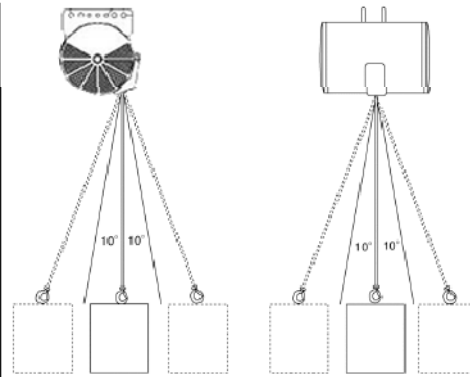
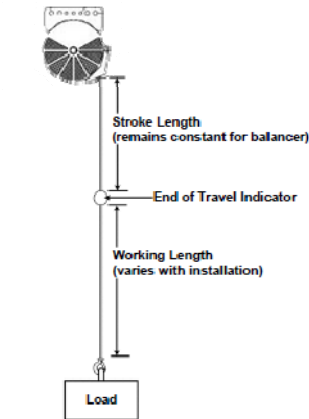
The following table shows probable cause and solutions of common malfunctions.

If any malfunctions not shown below happen, please contact your dealer or us.

Malfunction	Main Cause	Solution
Lifting and holding load cannot be done.	Insufficient air pressure	Increase air pressure. Set air pressure no greater than 0.7Mpa
	Load over maximum capacity	Check the weight of the load with jig. Set the load under maximum capacity.
	Air leaking from control handle or hose	Check the hose fitting part. If air leaking does not stop, replace the control handle or hose
	Air leaking between End Cap(M) and Manifold	Replace O-rings of Manifold
	Air leaking between End Cap(M) and Main housing	Replace O-rings of End Cap(M)
Irregular operation	Fluctuation of Air pressure	Set regulator in air supply line and adjust air pressure
	Air containing water, oil, dirt, etc	Set filter that can filter to 5 μm

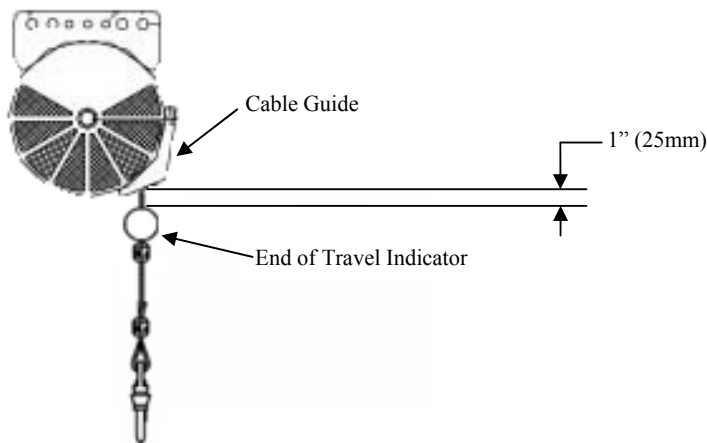


9.0 Wire Rope Setup



Criteria for wire rope:

- Total weight of end effector and load is less than stated capacity of the balancer.
- The angle of deflection from the bottom of the balancer to the end effector does not exceed 10 degrees in any direction (fig. 1.1)
- The process or use of the balancer does not require rotation greater than 180 degrees about the axis of the cable on every cycle. (Use of a swivel hook will alleviate excess rotation).

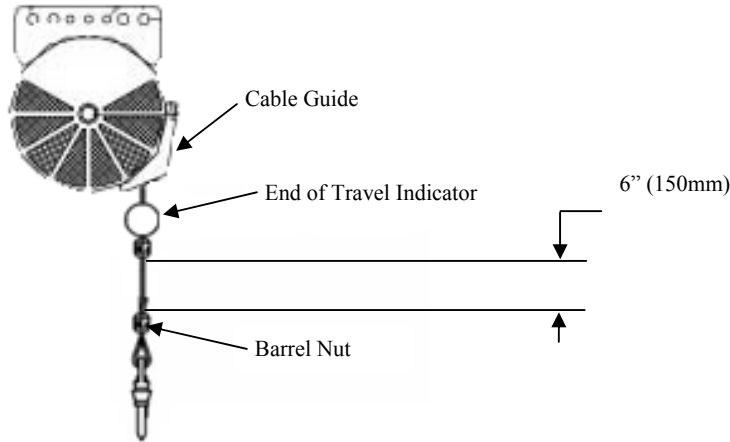


End of Travel Indicator or Ball Stop:

- Typically is installed by the supplier and should not be repositioned from the factory set location.
- Ball stops should only be used as a visual indicator for the operator to depict that the raising of the end effector is near its maximum lift height. It should never be used as a physical hard stop.
- Ball stop should be positioned approximately 25mm from the bottom of the cable guide at the full up position to the top of the ball.



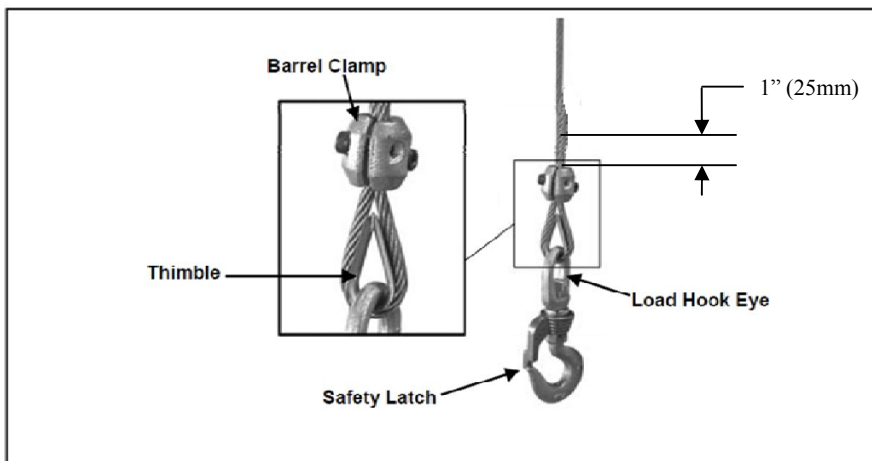
9.0 Wire Rope Setup (cont.)



Barrel Nut Location:

- A single barrel nut is required to position the ball stop.
- A single barrel nut is required to properly secure the cable above the thimble (87 in-lbs).
- Barrel nut is used to secure end of the cable after it has been properly located around the required thimble and through the load hook.
- Approximately 25mm (1 inch) of the cable end should extend out past the top of the barrel nut (see figure below)
- The Barrel nut should be positioned approximately 150mm (6 inches) from the bottom of the ball stop (end of travel indicator) to the top of the barrel nut.
- Barrel nut hardware to be torqued to (87 in-lbs).
- Never use multiple barrel nuts to secure the ball stop or the load thimble.

NOTE: Additional cable/barrel clamps are *not* needed to supplement the OEM rigging. Adding additional cable clamps may weaken the wire rope.



Hook Connection:

- Approximately 25mm (1 inch) of cable should extend past the top of the barrel nut.
- Once barrel nut is secured to recommended torque (87 in-lbs)



9.1 Wire Rope Replacement

WARNING

- Always remove the load from the Air Balancer before wire rope replacement.
- Always shut off the air supply before wire rope replacement.
- Always do the wire rope replacement on the floor.
- Always employ specialists or well trained persons for wire rope replacement.

CAUTION

Careless work can cause damage to the Air Balancer or personal injury.
Therefore, take care during wire rope replacement.

Procedures of disassembly (Referring to Parts list)

1. Remove Clamp (26, 27), Hook Ass'y (30), Thimble (29), Ball Stopper (25) from Wire Rope (11).
2. Remove Wire Rope Guide (23) from Main Housing (13).
3. Extend the wire rope to the maximum cable travel and then remove it from Wire Drum.
 - ★ If the wire rope can not be extended, extract air by the pushing buttons.Reassemble the Air Balancer in reverse order of disassembly.

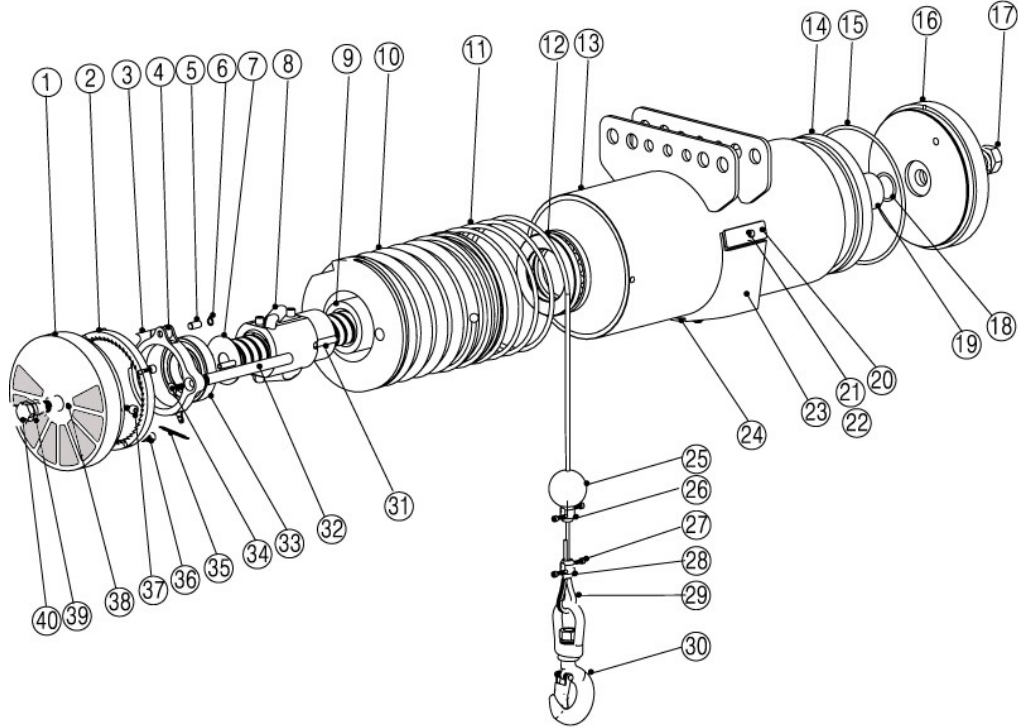
WARNING

Never use the ball stopper as a means of stopping the wire rope.
If the ball stopper collides with the main housing frequently, the wire rope will be damaged and the suspended load may drop, causing serious danger.



10. Parts List

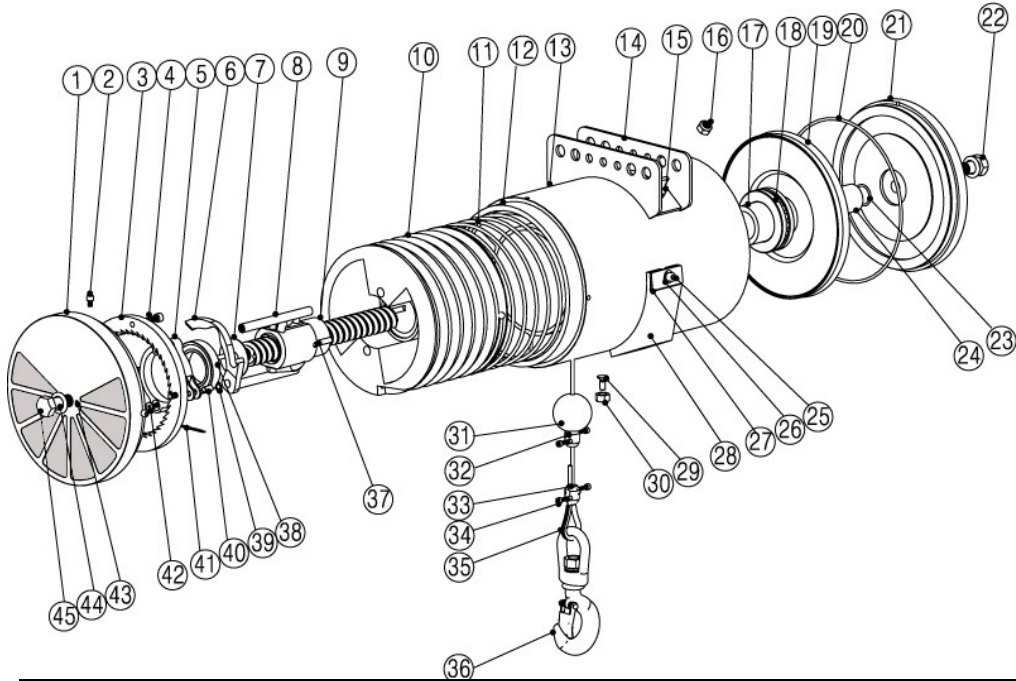
10.1 U_B-132 Unit (U_B-132-079)



No.	Part No.	Description	Qty	No.	Part No.	Description	Qty
1	070-1004	End Cap (B)	1	21	070-1006	Lock Nut	1
2	070-7001	Ratchet Wheel	5	22	070-1007	Washer	1
3	070-7003	Brake Pawl	1	23	070-1023	Wire Rope Guide	1
4	070-7002	Brake Rotor	1	24	070-1024	Guide Plate_(L)	1
5	070-7004	Pin	1	25	070-1026	Ball Stopper	1
6	070-7012	Snap Ring	1	26	070-1028	Clamp_A	2
7	070-7005	Bearing Retainer	1	27	070-1029	Clamp_B	2
8	000-4000	Ball Screw Ass'y	1	28	070-1035	Hex Bolt	4
9	070-1012	Bearing Retainer	1	29	070-1015	Wire Protection Guide	1
10	070-1010	Drum	1	30	070-1027	Hook Ass'y	1
11	070-1022	Wire Rope	1	31	070-1009	Pin	1
12	070-1011	Thrust Bearing	1	32	070-7007	Brake Shaft	1
13	070-1013	Main Housing Ass'y	1	33	070-7008	Bearing	1
14	070-1014	Piston Ass'y	1	34	070-7009	Flush Machine Screw	1
15	070-1017	O-Ring	1	35	070-7006	Spring	1
16	070-1019	End cap (M)	1	36	070-7010	Hex. Head Bolt	4
17	070-1021	Hex. Bolt	1	37	070-1005	Hex. Head Bolt	2
18	070-1018	O-Ring	1	38	070-1003	Spring Pin	2
19	070-1016	Ball Screw Cap	1	39	070-1002	Washer	2
20	070-1025	Guide Plate_(H)	1	40	070-1001	Hex. Bolt	1



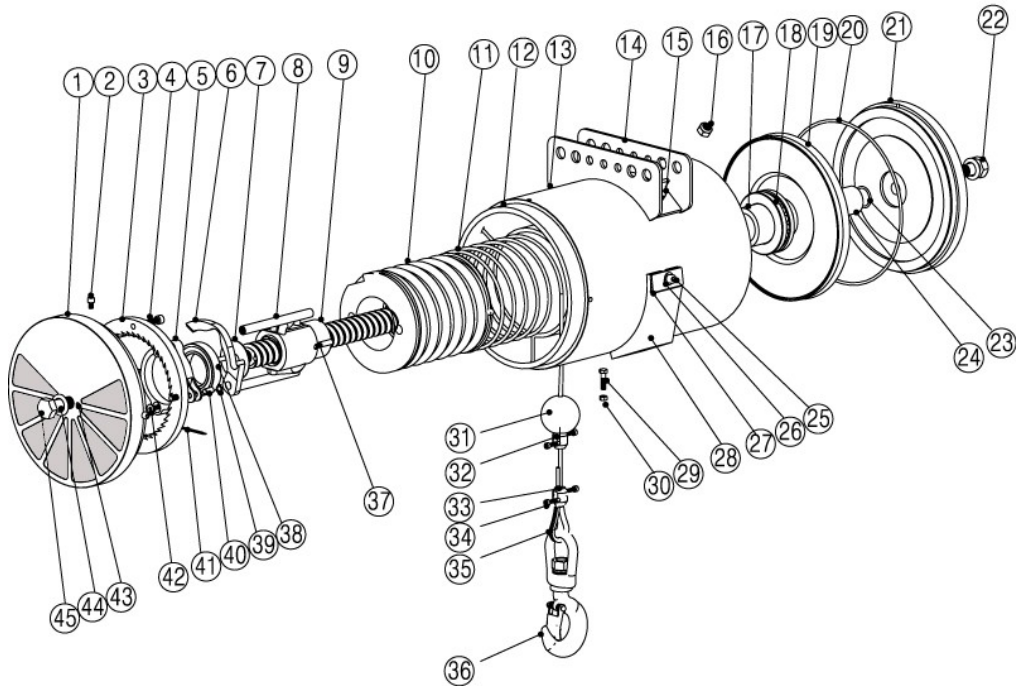
10.2 U_B-220 Unit (U_B-220-118)



No.	Part No.	Description	Qty	No.	Part No.	Description	Qty
1	100-1004	End Cap (B)	1	24	100-1016	Ball Screw Cap	1
2	100-1005	Hex. Bolt	4	25	100-1025	Hex Bolt	1
3	100-7001	Ratchet Wheel	5	26	100-1006	Washer	1
4	100-7010	Hex. Bolt	4	27	100-1024	Guide Plate	1
5	100-7002	Brake Rotor	1	28	100-1023	Wire Rope Guide	1
6	100-7003	Brake Pawl	1	29	100-1037	Flush Machine Screw	1
7	100-7005	Bearing Retainer	1	30	100-1038	Lock Nut	1
8	100-7007	Brake Shaft	2	31	100-1026	Ball Stopper	1
9	100-4000	Ball Screw Ass'y	1	32	100-1028	Clamp_A	2
10	100-1010	Wire Drum	1	33	100-1035	Hex Bolt	4
11	100-1022	Wire Rope	1	34	100-1029	Clamp_B	2
12	-	-	1	35	100-1015	Wire Protection Guide	2
13	100-1013	Main Housing Ass'y	1	36	100-1027	Hook Ass'y	1
14	100-1031	Bracket Ass'y	1	37	100-1009	Ball Screw Fixed Pin	1
15	100-1035	Hex Bolt	2	38	100-7008	Ball Bearing	1
16	100-1036	Lock Nut	2	39	100-7012	Snap Ring	1
17	100-1012	Bearing Retainer	1	40	100-7004	Brake Pin	1
18	100-1011	Thrust Bearing	1	41	100-7006	Spring	1
19	100-1014	Piston Ass'y	1	42	100-7009	Flush machine Screw	2
20	100-1018	O-ring	1	43	100-1003	Spring Pin	2
21	100-1019	End Cap (M)	1	44	100-1002	Washer	2
22	100-1021	Hex Bolt	1	45	100-1001	Hex. Bolt	1
23	100-1017	O-ring					



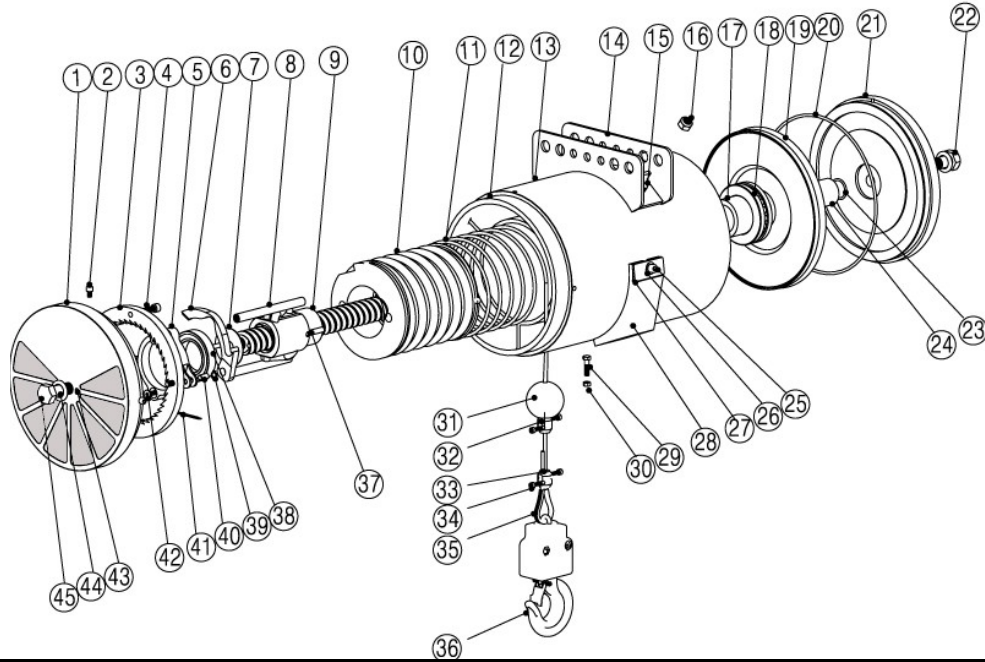
10.3 U_B-331 Unit (U_B-331-079)



No.	Part No.	Description	Qty	No.	Part No.	Description	Qty
1	160-1004	End Cap (B)	1	24	160-1016	Ball Screw Cap	1
2	160-1005	Hex. Bolt	4	25	160-1025	Hex Bolt	1
3	160-7001	Ratchet Wheel	5	26	160-1006	Washer	1
4	160-7010	Hex. Bolt	4	27	160-1024	Guide Plate	1
5	160-7002	Brake Rotor	1	28	160-1023	Wire Rope Guide	1
6	160-7003	Brake Pawl	1	29	160-1037	Hex Bolt	1
7	160-7005	Bearing Retainer	1	30	160-1038	Lock Nut	1
8	160-7007	Brake Shaft	2	31	160-1026	Ball Stopper	1
9	000-4000	Ball Screw Ass'y	1	32	160-1028	Clamp_A	1
10	160-1010	Wire Drum	1	33	160-1035	Hex Bolt	2
11	160-1022	Wire Rope	1	34	160-1029	Clamp_B	4
12	-	-	-	35	160-1015	Wire Protection Guide	2
13	160-1013	Main Housing Ass'y	1	36	160-1027	Hook Ass'y	1
14	160-1031	Bracket Ass'y	1	37	160-1009	Ball Screw Fixed Pin	1
15	160-1035	Hex Bolt	2	38	160-7008	Bal bearing	1
16	160-1036	Lock Nut	2	39	160-7012	Snap Ring	1
17	160-1012	Bearing Retainer	1	40	160-7004	Brake Pin	1
18	160-1011	Thrust Bearing	1	41	160-7006	Spring	1
19	160-1014	Piston Ass'y	1	42	160-7009	Flush Machine Screw	2
20	160-1018	O-ring	1	43	160-1003	Spring Pin	2
21	160-1019	End Cap (M)	1	44	160-1002	Washer	2
22	160-1021	Hex Bolt	1	45	160-1001	Hex. Bolt	1
23	160-1017	O-ring					



10.4 U_B-485 Unit (U_B-485-079)



No.	Part No.	Description	Qty	No.	Part No.	Description	Qty
1	230-1004	End Cap (B)	1	24	230-1016	Ball Screw Cap	1
2	230-1005	Hex. Bolt	4	25	230-1025	Hex Bolt	1
3	230-7001	Ratchet Wheel	5	26	230-1006	Washer	1
4	230-7010	Hex. Bolt	4	27	230-1024	Guide Plate	1
5	230-7002	Brake Rotor	1	28	230-1023	Wire Rope Guide	1
6	230-7003	Brake Pawl	1	29	230-1037	Hex Bolt	1
7	230-7005	Bearing Retainer	1	30	230-1038	Lock Nut	1
8	230-7007	Brake Shaft	2	31	230-1026	Ball Stopper	1
9	000-4000	Ball Screw Ass'y	1	32	230-1028	Clamp_A	1
10	230-1010	Wire Drum	1	33	230-1035	Hex Bolt	2
11	230-1022	Wire Rope	1	34	230-1029	Clamp_B	4
12	-	-	-	35	230-1015	Wire Protection Guide	2
13	230-1013	Main Housing Ass'y	1	36	230-1027	Hook Ass'y	1
14	230-1031	Bracket Ass'y	1	37	230-1009	Ball Screw Fixed Pin	1
15	230-1035	Hex Bolt	2	38	230-7008	Bal bearing	1
16	230-1036	Lock Nut	2	39	230-7012	Snap Ring	1
17	230-1012	Bearing Retainer	1	40	230-7004	Brake Pin	1
18	230-1011	Thrust Bearing	1	41	230-7006	Spring	1
19	230-1014	Piston Ass'y	1	42	230-7009	Flush Machine Screw	2
20	230-1018	O-ring	1	43	230-1003	Spring Pin	2
21	230-1019	End Cap (M)	1	44	230-1002	Washer	2
22	230-1021	Hex Bolt	1	45	230-1001	Hex. Bolt	1
23	230-1017	O-ring					



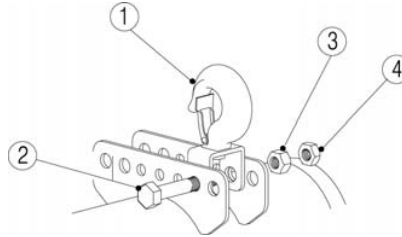
10.5 UAB Manifold Unit (99025)



No.	Part No.	Description	Qty.
1	51677	Hex Head Bolt	4
2	52496	Spring Washer	4
3	99025	Manifold Body	1
4	000-2005	O-Ring	1
5	99030	Street Elbow	1
6	99048	1/2" Check Valve	1



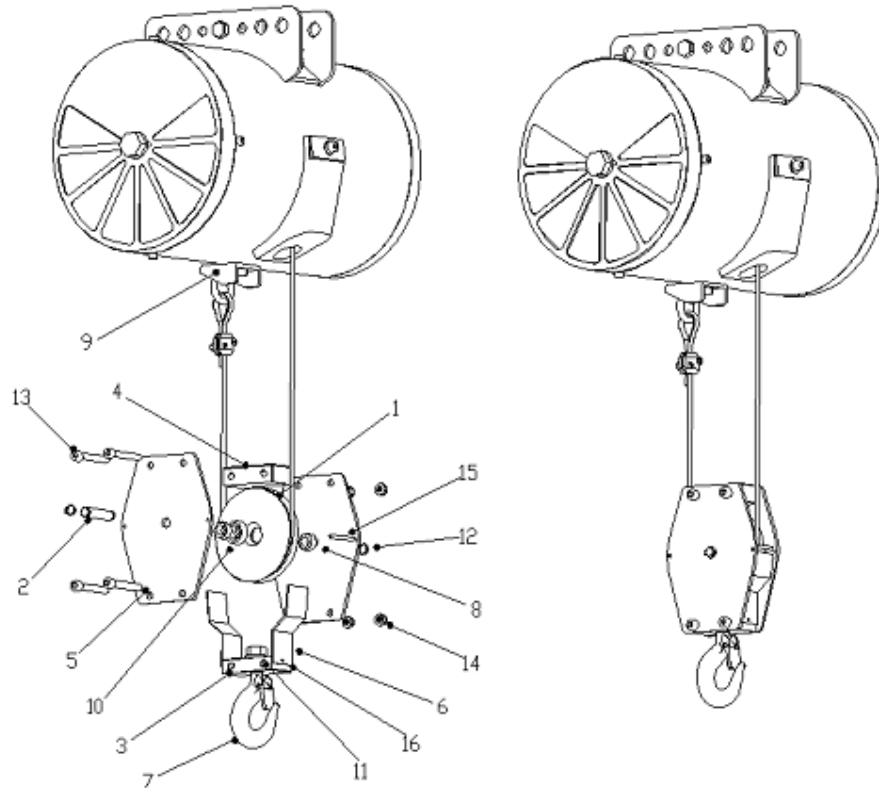
10.6 Suspension Hook (99010)Option



No.	Part No.	Description	Qty.	No.	Part No.	Description	Qty.
1	000-6001	Suspension Hook Assembly	1	3	000-6003	Hex Nut	1
2	000-6002	Hex Bolt	1	4	000-6004	Hex Nut	1



10.7 Reeved Hook Unit



No.	Part No.	Description	Qty	No.	Part No.	Description	Qty
1	200-1001	Wheel	1	9	200-1009	Reeved Plate	1
2	200-1002	Shaft Pin	1	10	200-1011	Bearing	2
3	200-1003	Bottom Plate	1	11	200-1012	Bearing	1
4	200-1004	Upper Plate	1	12	200-1013	Snap ring	2
5	200-1005	Side Plate	2	13	200-1014	Bolt	4
6	200-1006	Guide Plate	2	14	200-1015	Nut	4
7	200-1007	Hook Ass'y	1	15	200-1016	Spring pin	2
8	200-1008	Spacer	2	16	200-1017	Bolt	2



10.8 INSPECTION AND MAINTENANCE FREQUENCY

<u>Inspection Procedures</u>	Time Based Inspection	Cycle Based Inspection
Check the wire rope to make sure that is not kinked, deformed, damaged, or worn. (Also 8.1 (2) Inspection of Wire Rope and Service Limit.)	Daily or prior to each use	1,800
Check the load hook to see if it is stretched or damaged and verify the hook latch is in the normal position.	Daily or prior to each use	1,800
Check the trolley wheel track and verify the rails as well as the trolleys wheels are not worn.	6 months	270,000
Check balancer for loose mounts, bolts, nuts and hardware. Ensure proper attachments to trolleys. Balancer suspension kit hardware is to be snug tight only. Do not overtighten. Bolts that connect mounting bracket assembly to main housing assembly are to be torqued to 32 ft-lbs. Barrel nut hardware are to be torqued to 87 in-lbs.	3 months	135,000
Check the indications marked on the push button switches correctly show the actual directions of up/down operations.	Daily or prior to each use	1,800
Check the ball stopper is not in contact with the man housing when in the fully up position.	Daily or prior to each use	1,800
Lift the load a few inches and check ability to stop and hold the load without excessive drift.	30 Days	54,000
Run balancer up and down with no load one cycle. Check balancer is not abnormally noisy or vibrating.	Weekly	12,600
Verify wire rope end is 1" above the clamp	1 Month	54,900

1. Cycle Based Inspection should be used when the number of cycles can accurately be determined.
2. Time Based Inspection should be used when the number of cycles cannot accurately be determined.
3. One cycle is considered:

-Starting at the upper limit and lowering to the lower limit, then returning to the upper limit.

-OR-

- Starting at the lower limit and lifting to the upper limit, then returning to the lower limit.



UNIFIED INDUSTRIES, INC.

A Columbus McKinnon Company

U_B Series



Distributed by Tri-State Equipment Company Inc.

sales@tsoverheadcrane.com

www.tsoverheadcrane.com

Tel: (314) 869-7200