USER MANUAL

DR-TB9K, DR-TB15K, DR-TB22K, DR-TB30K, DR-TB40K, DR-TB50K, DR-TB60K, DR-TB70K

Delta Regis Tools Inc.
7370 Commercial Circle
Fort Pierce, FL 34951
www.deltaregis.com

Specifications

Model	Capacity	Stroke	Weight
DR-TB9K	4.5-9.0 kg 9.9-19.8 lbs	1.3 m 4.3 ft	3.4 kg 7.49 lbs
DR-TB15K	9.0-15.0 kg 19.8-33.0 lbs	1.3 m 4.3 ft	3.8 kg 8.37 lbs
DR-TB22K	15.0-22.0 kg 33.0-48.0 lbs	1.5 m 5.0 ft	7.2 kg 15.87 lbs
DR-TB30K	22.0-30.0 kg 48.0-66.0 lbs	1.5 m 5.0 ft	8.5 kg 18.74 lbs
DR-TB40K	30.0-40.0 kg 66.0-88.0 lbs	1.5 m 5.0 ft	9.8 kg 21.60 lbs
DR-TB50K	40.0-50.0 kg 88.0-110.0 lbs	1.5 m 5.0 ft	10.4 kg 22.93 lbs
DR-TB60K	50.0-60.0 kg 110.0-132.0 lbs	1.5 m 5.0 ft	11.6 kg 25.57 lbs
DR-TB70K	60.0-70.0 kg 132.0-154.0 lbs	1.5 m 5.0 ft	11.8 kg 26.01 lbs

- Read all instructions before operating tool.
- Keep this instruction manual with your tool.
- These specifications and design may be changed for improvement without prior notice.

Contents

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* Before using your new spring balancer, please read this manual carefully to ensure proper use and prolong the life of the unit.

The following safety notations are used throughout the manual to highlight safety precautions for the user and for the machine.

⚠ DANGER — DANGER indicates a potentially hazardous situation which, if not avoided by following the instructions given, could result in death or serious injury .

⚠ WARNING — WARING indicates a potentially hazardous situation which, if not avoided by following the instructions given, could result in death or serious injury.

⚠ CAUTION — CAUTION indicates a potentially hazardous situation which, if not avoided by following the instructions given, could result in injury or material damage.

1. SAFETY INSTRUCTIONS(Spring Balancer)

Important safety instructions for all spring balancers. When using spring balancers, basic safety precautions should always be followed to reduce risk of personal injury.

1-1 Spring Balancer Installation

⚠ WARNING

- Install the balancer correctly. Incorrect installation could cause personal injury or damage to the Spring Balancer or other equipment.
- Install secondary wire rope or chain to the spring balancer. If the spring balancer's main hanger of fitting link is damaged, it could protect workers' safety from accidents.
- Make sure that the assist wire rope or secondary chain should be mounted to a different location than the Spring Balancer's main hanger.
- Make sure that there is enough slack in assist wire rope or secondary chain, so that it is able to move freely. In this installation, if the main hanger breaks or falls down, make sure to leave only a small amount of slack to avoid injury.
- Install stronger fitting link than the maximum capacity of the Spring Balancer.
- The fitting link must be closed so that it does not fall when even Spring Balancer's shakes.
- Do not fix the main hanger of Spring Balancer. Make sure it can swivel freely.

1-2 Directions for the use of Spring Balancer

⚠ WARNING

- Never pull down the cable while releasing spring tension.
- Never remove the tool from the Spring Balancer's hook while the cable is extended. The fast winding of cable could cause personal injury when you let go of the cable.
- Never work right under the suspended spring balancer and tool.
- Never Alter the Spring Balancer.

⚠ CAUTION

- Always use within the capacity range of the Spring Balancer.
- Always adjust the spiral spring tension before using the Spring Balancer.
- Do not pull down the cable over its maximum weight.
- Cable should only be pulled straight down.
- Do not use more than two tools for one unit Spring Balancer.

1-3 Maintenance and Inspection

⚠ WARNING

- Be sure to inspect the Spring Balancer on a regular basis.
- Stop using, if there is abrasion or damage on Cable or Hook.
- Never alter or disassemble the Spring Balancer.
- There is a coil spring in the body of Spring Balancer. If disassembled, the sudden expansion of the coil spring can cause personal injury.
- If you need your Spring Balancer repaired, contact your sales agency or Delta Regis Tools Inc. directly

1-4 Disposal

⚠ WARNING

- Contact your disposal dealer, in case of disuse Spring Balancer. There is a sudden expansion of the coil spring then the balancer is disassembled which can cause injury or damage to property

2. USAGE

A Spring Balancer is a device which suspends a tool above the work area helping to balance the weight of the tool.

3. CHECK THE CONTENTS OF THE PACKAGE

When you pick the new balancer out from the box, you should check the contents and the condition such as breakages or oil leakages during transportation. You may refer the contents to the part list of manual. If you have any problem with our Spring Balancer, contact your sales agency or Delta Regis Tools Inc. directly.

4. INSTALLATION

4-1 Spring Balancer Installation (Figure-I)

⚠ WARNING

- You should install the Spring Balancer that has proper strength and strong fitting link for its capacity range. Anchor should hold at least 10 times of the strength of the Spring Balancer's maximum capacity.
- The fitting link must be closed so that it does not fall when even spring balancer is moved.
- Make sure that there is enough slack in assist wire rope or secondary chain, so that the spring balancer it is able to move freely.
- Do not fix the main hanger of spring balancer. Main Hanger should be able to swivel freely.

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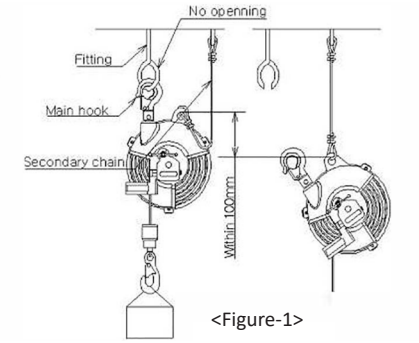
1) Attach the main hook of the spring balancer to the fitting link.
2) Make sure the Spring Balancer can move (rotation or gradient) freely.
3) Attach an end of the wire rope or secondary chain to the spring balancer's body.
4) Attach the other end of the wire rope or secondary chain to a separate fitting link which does not support the spring balancer.
5) Check the spring balancer is working smoothly with suspended tool.



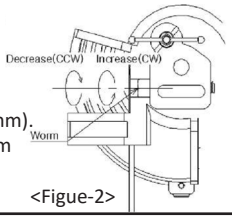
<Figure-1>

⚠ CAUTION

- Use only weights within the capacity range of the Spring Balancer. In this case, calculate the total weight of tool and accessories (Air hose., wire etc) including the Spring Balancer's weight.

4-2 Tool and device attachment & Tension adjustment

1) Make sure that the tool or device weight including accessories are within the Spring Balancer's specified range.
2) Adjust the coil spring tension to be in balance with tool or device.
   - Adjust the spiral spring tension with Hex. socket screw key(4mm).
   - Turn clockwise for increasing the spiral spring tension, and tum counter-clockwise for decreasing it.
3) Lift up the Tool or Device to the fitting link.



<Figue-2>

⚠ WARNING

• Make sure that there is no person or object under the hook, when you attach the hook or release the manual stopper lock. If the weight of the tools or device hanging on the hook is heavier than the maximum spring tension, it could drop and cause personal injury.

4-3 Secure work space

⚠ CAUTION

• Excessive cable's exposure or the maximum stroke of the cable could cause damage to the Spring Balancer and its life would be shortened.

- Check that the working range is within cable stroke range.
- If necessary, adjust the height of Spring Balancer or use a suitable Jig between the hook and tool.

5. OPERATING INSTRUCTIONS

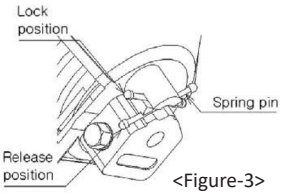
5-1 Manual stop operation

⚠ DANGER

• Make sure lock is engaged securely. You will hear a click if lock is engaged properly.

• Lock operation

I. Pull out the spring pin, turn it counter-clockwise and position in groove.
II. Re-adjust coil spring tension until you achieve desired tool balance.
III. Move suspended tool up or down until spring pin enters groove and locks.
IV. Move tool again to make sure drum is locked.



<Figure-3>

• Release operation

I. Pull out the spring pin and turn clockwise until it is back in release groove.
II. when spring pin moves into release groove the drum is released.

5-2 Tool or device replacement

⚠ DANGER

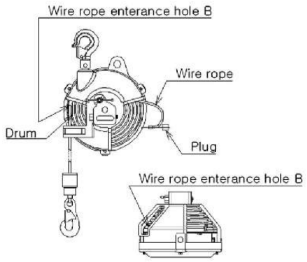
- Never remove the suspended tool or device before making sure the drum lock is engaged
- Never release drum lock when the spring balancer is unloaded. If released, the fast winding of the cable can lead to injury.

I. Lock the drum similar to “5-1 Manual Stop Operation” and remove the suspended tool or device.
II. Before attaching, ensure total weight of new tool or device, including all accessories, are within the specified weight capacity of the spring balancer.
III. Adjust the coil spring tension at the same time turning the worm gear with wrench and refer to gauge scale. Clockwise for increasing tension and counter-clockwise for decreasing tension.

5-3 Cable replacement

⚠ CAUTION

- Cable replacement can be done without the product disassembly. If you need to disassemble refer to “6-3 Disassembly and Assembly (Figure-5)”.



I. Pull down the cable to the maximum cable travel and then engage manual stop.
II. After making sure the drum is locked, remove the tool or device.
III. Remove the cable set bolt (plug) and pull out the cable from the drum.
IV. Separate the collar and shock absorber from old cable and assemble the new cable.
V. Attach the cable to the drum on inside of the housing.
VI. Assemble the cable set bolt (plug)
VII. After attaching the tool or device to the hook, release the drum lock by using the manual stop.

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5-4 Safety Device

⚠ WARNING

- Never remove the spiral spring from the spring case. Contact your sales agency or Delta Regis Tools Inc. directly for repair or replacement.

6. TROUBLESHOOTING

⚠ WARNING

- Stop working and take precautions when you have trouble in using Spring Balancer.
- Never release Tool or Device until you find out the cause of trouble.

Condition	Cause	Solution
Cable is not moving	The manual stop has been engaged	Release manual stop (Refer to item 5-1)
	The cable is stuck between drum and housing	Release the tension of the coil spring and wind cable again. (Refer to item 6-1)
Cable is only moving slightly	The tension of the coil spring is set too low and the safety device lock is in use	Release safety device lock (Refer to item 6-1)
	The spring is damaged and the safety device lock is in use	Replace coil spring (Refer to item 5-4)

6-1 Solutions for Safety Device Lock

Safety lock will engage if it senses low tension of the Coil Spring.

I. Check that the scale of gauge was not set at less than the minimum weight.
II. Move the suspended tool upward and downward and turn the worm gear in clockwise direction to raising the tension of the spiral spring until it escapes LOCK point.
III. Confirm that the safety device is not locked in any section of the stroke.
IV. When the safety device pin is locked under the minimum weight, the capacity range of coil spring is too high for the weight of the tool. You should then change to a balancer that has a lower weight capacity.

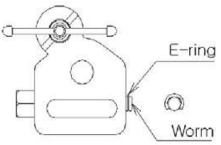
In the case that the coil spring is damaged.

I. Confirm the scale of the gauge is set inside of the capacity range.
II. Replace the coils spring. Refer to item “6-3 Cover Disassembly”

6-2 Solution for cable stuck between drum and case

I. Pull down the cable when the tool is suspended on it.
II. Once cable is extended you can replace the cable after disassembly (Refer to 6-3).
III. Replace cable if any signs of wear and tear occur.

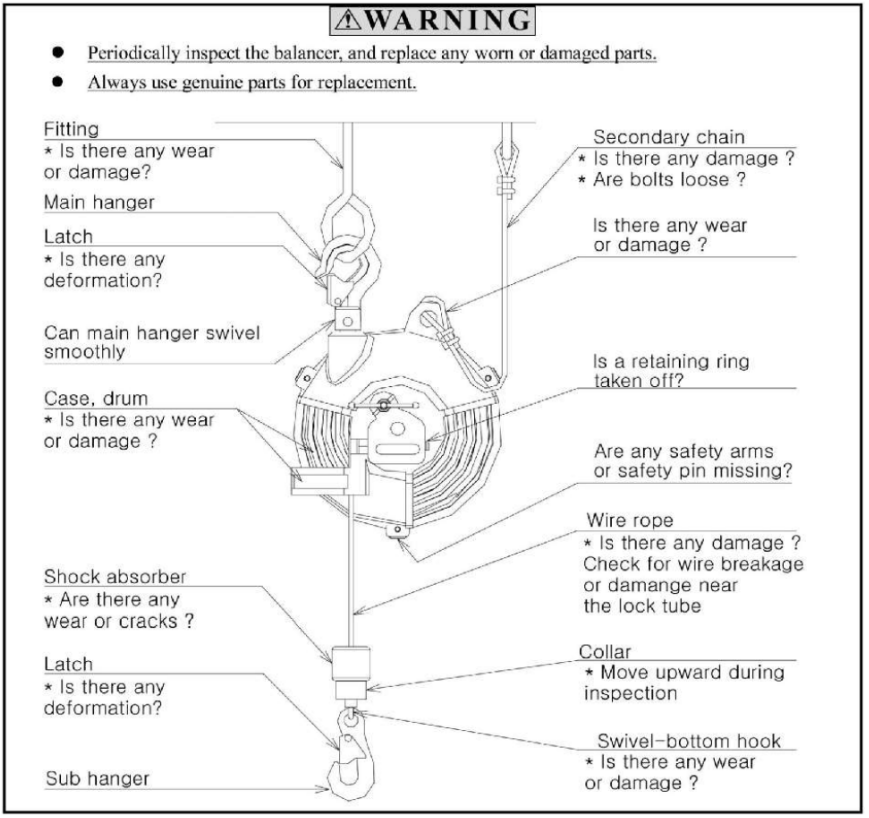
6-3 Disassembly and assembly



I. Adjust the worm until the tension of spring is situated at zero
II. Remove the E-RING at the end of the worm gear.
III. Release the bolt which connects the case and the cover and disassemble the cover.
IV. The assembly is in reverse order of disassembly.

7. MAINTENANCE & INSPECTION

Periodically (Recommended every 30 days) inspect balancer and replace any damaged parts



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