

## Aero-Motive Company

**W** A Woodhead Industries, Inc. Subsidiary

### IMPORTANT SAFETY INFORMATION

Please read this manual carefully and follow its instructions. Improper use or failure to follow these instructions could result in serious injury, death or property damage. Operators should be instructed in the safe and proper use and maintenance of this product. Keep this manual for future reference. All reference numbers are located on page 5.

The following safety precautions call attention to potentially dangerous conditions.



**DANGER:** Immediate hazards which **WILL** result in severe personal injury or death.



**WARNING:** Hazards or unsafe practices which **COULD** result in severe personal injury or death.



**CAUTION:** Hazards or unsafe practices which **COULD** result in *minor* personal injury or product or property damage.

### INSTALLATION



**WARNING:** Main support device must have break strength exceeding 6 times weight of load. Hazards or unsafe practices **COULD** result in severe personal injury or death.



**CAUTION:** Use new cotter pin when re-assembling clevis pin. Hazards or unsafe practices **COULD** result in *minor* personal injury or product or property damage.

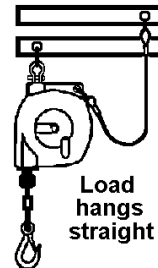
#### MAIN SUPPORT

Install the main support device directly over work area. (See illustration). If balancer needs to be pulled from side to side a swinging jib and/or moving trolley may be required. Attach balancer to main support, with shackle and shackle pin. Secure shackle pin with nut and cotter pin. If upper Bullard-hook option, lock hook gate after installation.

**NOTE:** Mounting balancer in wrong configuration, with cable pulling against guide, can cause premature cable wear and cable to jam inside balancer.

#### CORRECT

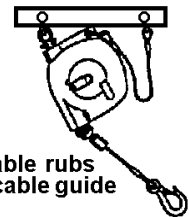
Balancer directly over work area  
Secondary support attached to separate support



Load hangs straight

#### WRONG

Balancer not directly over work area  
Secondary support attached to same support



Cable rubs on cable guide

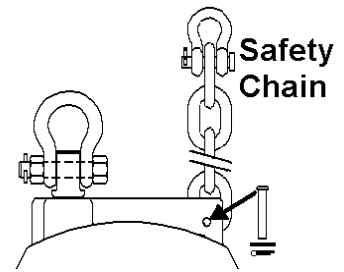
#### SECONDARY SUPPORT CHAIN



**DANGER:** A secondary safety cable or chain is to be attached to all balancers mounted overhead to prevent balancer from falling. Immediate hazards **WILL** result in severe personal injury or death.

A hole has been provided at side of housing to permit installation of secondary support chain. All balancers mounted over head must have a secondary support chain to protect personnel in case of structure or mounting component failure.

Attach one end of secondary support chain or cable to secondary support point (shackle) on balancer. Attach other end of secondary support chain or cable to a support component other than that which supports balancer. Chain or cable should be as short as possible allowing balancer to drop no more than 6 to 12 inches if primary connection is released. (See Illustration) A secondary support is offered as an accessory item.



## ADJUSTMENT



**CAUTION:** Do not pull cable down to tool clip. Raise tool to clip. Hazards or unsafe practices **COULD** result in *minor* personal injury or product or property damage.

### TOOL ATTACHMENT

Lift complete tool (including any hose, cable, fittings and attachments) up to tool clip. After tool is attached, make sure the retaining latch on hook is back to closed position.

### SPRING TENSION ADJUSTMENT



**CAUTION:** Do NOT over-tension balancer main spring. This will reduce cable travel and spring life. Hazards or unsafe practices **COULD** result in *minor* personal injury or product or property damage.

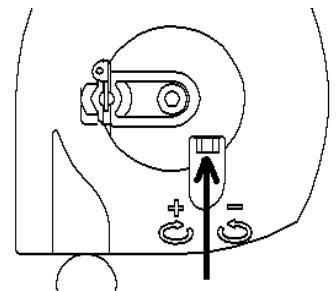
**NOTE:** If cable won't pull out when reducing spring tension, increase tension until drop stop disengages. Cable may also not pull out due to side pulling as shown in Main Support section.

Observe following before making spring tension adjustments:

- Tool and all accessories are attached to hook.
- All balancers come from factory pre-set at highest tension.
- Tool will lower if the weight of tool exceeds tension adjustment of balancer mainspring.
- If cable stop is up against cable guide prior to adjustment, there is too much tension on balancer mainspring.

**To increase spring tension**, worm gear shaft in "+" direction as shown on the case. Repeat process until desired tension is achieved.

**To decrease spring tension**, turn worm gear shaft in "-" direction as shown on the case. Repeat process until desired tension is achieved.



**NOTE:** The tensioning worm gear must be turned about 20 times for 1 full turn on the mainshaft.

### CABLE STOP ADJUSTMENT

Adjusting cable stop is not recommended due to reduction in active travel distance, and difficulty. If additional cable extension is required, extension cable assemblies are offered as an accessory item. Special cables can be offered with specific overhang or unique adjustments. Contact factory.

### RATCHET LOCK (not automatic safety lock)

EBxxxR models come with ratchet lock. The ratchet lock can engage in 4 inch increments. During every 4 inches of travel is a zone of 2 inches where it will lock. The other 2" travel will not lock. To engage, pull cable down to desired height, then slowly allow it to retract. If it doesn't catch, pull out a little more, to get into the 2" locking zone, and allow to retract. The clicking noise can clue you when it is likely to engage. To disengage, pull cable down a couple inches and lock will release. If ratchet lock is not required, ratchet lock components must be removed. See spring replacement instructions.

## AUTOMATIC LOCK



**WARNING:** Never remove spring from drum and spring assembly. Replacement springs are sealed for safety. Hazards or unsafe practices **COULD** result in severe personal injury or death.

**NOTE:** If tension is removed well below rated range of the balancer during spring adjustment, lock will engage. It will be necessary to apply more tension to release the lock unless cable is jammed from side pulling.

If a spring should break, automatic lock will engage to prevent drum from turning. Lock will disengage after new spring assembly is installed and reel is retensioned.

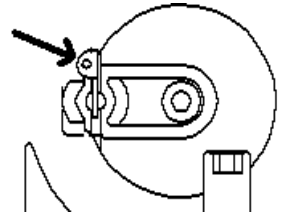
## SERVICE



**CAUTION:** Do not disassemble balancer without reducing all spring tension first. (See Spring Tension Adjustment). Also, do not adjust mainspring tension until tool and attachments are suspended from balancer. Hazards or unsafe practices **COULD** result in *minor* personal injury or product or property damage.

### TOOL REPLACEMENT

When replacing tool and attachments, make sure cable is fully retracted, or that drum lock lever is engaged. Arrow points to manual drum lock lever. Lift and allow pin to slide into housing to lock drum. Pull on cable to make sure pin is fully engaged before removing tool. To disengage, pull out and set lever in up position (as shown).



### DRUM & SPRING ASSEMBLY REPLACEMENT

Remove balancer from service. Remove *all* spring tension from balancer by turning worm gear counter-clockwise. Remove screws in cover, one screw in cable guide, and rear case. Remove four screws holding spring pocket to drum.



**WARNING:** To prevent serious injury, death or property damage, never remove spring from spring pockets. Replacement springs are sealed for safety.

**NOTE:** Drop stop must be held out to release mainspring assembly.

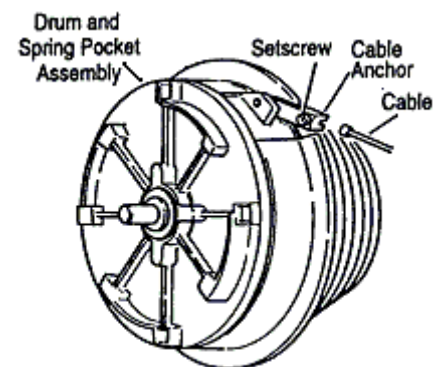
Install replacement mainspring in drum by aligning auto-stop windows. Reassemble screws and rear case in reverse order.

**NOTE:** Cable must be fully wound onto drum before attaching rear case.

### CABLE REPLACEMENT

**NOTE:** If cable is jammed in housing, cable can only be replaced by removing all tension and disassembling balancer.

- Pull tool down to full cable extension. Cable anchor should be inline with housing window.
- Lock drum by pulling on manual lock lever and allowing pin to slide into housing to lock drum. Pull on cable to make sure pin is fully engaged before proceeding.
- Remove tool from hook.
- Through housing window insert a screwdriver under the cable and lift up cable anchor.
- Loosen set screw and remove cable



**WARNING:** To prevent serious injury, death or property damage, do not release drum lock lever without installing load on hook. Otherwise, cable and hook will retract rapidly.

- Install new cable up through cable guide. Pull cable swaged end out of housing window and install into cable anchor. Tighten setscrew.
- Push anchor into housing, attach load on hook, and disengage manual drum lock lever

## PARTS REPLACEMENT

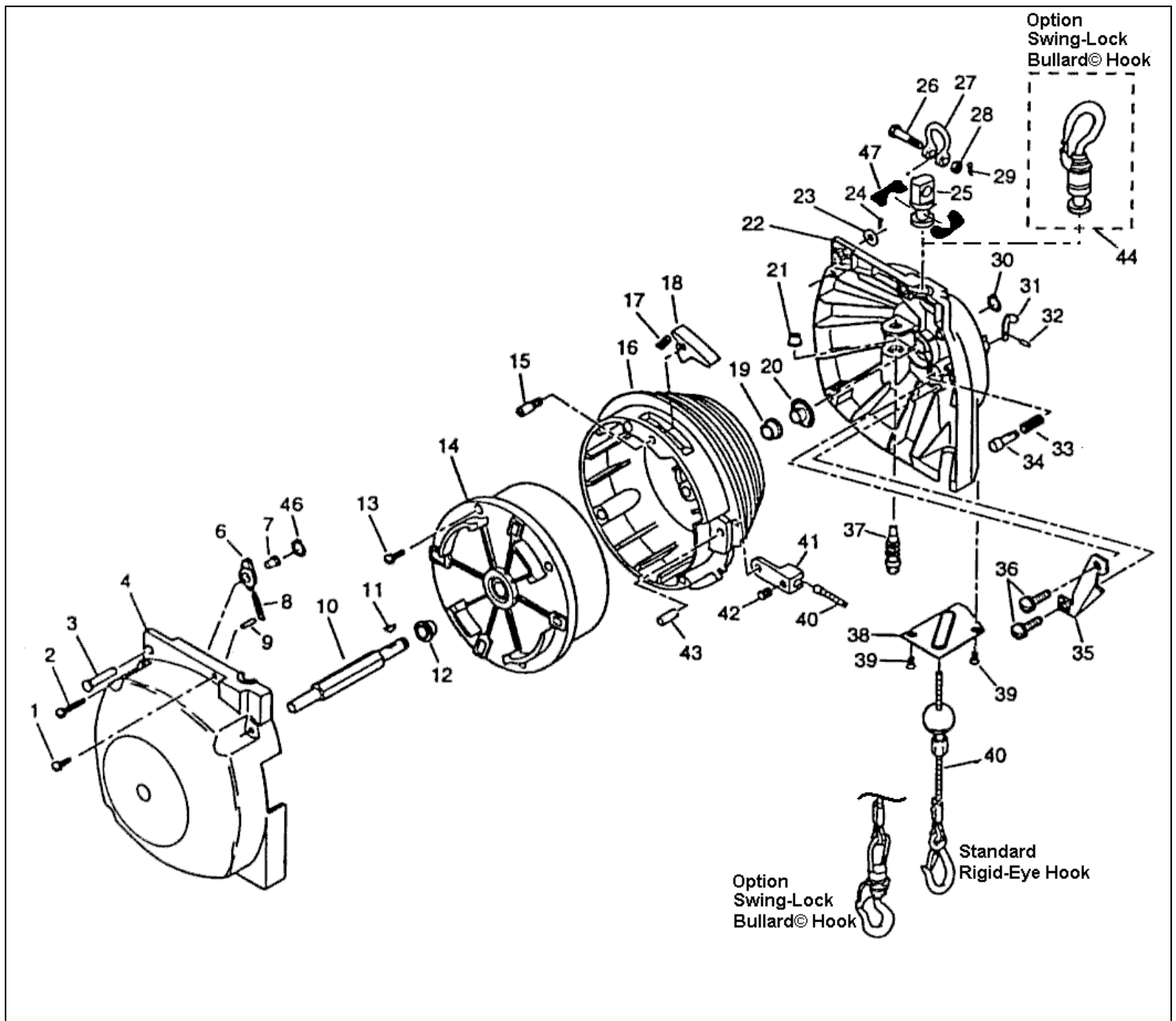
**NOTE: When ordering replacement parts, always include the balancer model number and serial number.**

All parts shown on parts list are replaceable in the field without special tools.

## MAINTENANCE INSPECTION

The balancer is designed to require little maintenance. Periodically check cable, tool clip, swivel, and hanger for wear. Replace all worn parts immediately. The balancer is lifetime lubricated at the factory. No additional lubrication is required.

## REPLACEMENT PARTS



Reference Number	Part Number	Qty.	Description
1	C03500253	1	M6 x 16 Pan head screw
2	C03500258	3	M6 x 30 Pan head screw
3	01235P0008	1	Clevis pin
4	M04350012	1	Case rear
6	M08710006	1	Ratchet lever
7	M23560034	1	Ratchet shaft
8	M15120003	1	Extension spring
9	C00400201	1	Groove pin
10	M26830003	1	Mainshaft
11	00751P0022	1	Woodruff key
12	00376P0005	1	Bearing
13	C03500253	4	M6 x 16 Pan head
14	H41220111	1	Spring assembly (EB25xxx Red spring color code.)
	H41220112		Spring assembly (EB35xxx White)
	H41220113		Spring assembly (EB45xxx & EB48xxx Blue)
	H41220114		Spring assembly (EB60xxxx Orange)
15	M25360212	1	Auto-stop shaft
16	M04840002	1	Drum
17	C60400128	1	Compression spring
18	M04600001	1	Auto-stop
19	00376P0005	1	Bearing
20	1109800001	1	Mainshaft gear
21	1106000000	1	Bearing
22	M04350011	1	Case front
23	00126P0050	1	Washer
24	00228P0011	1	Cotter pin
25	H16510016	1	Shackle shaft assembly (Incl. item 47) (EBxxx0x)
26	M28850024	1	Hex-head cap screw – drilled (EBxxx0x)
27	01240P0007	1	Shackle body (EBxxx0x)
28	00151P0070	1	Hex nut (EBxxx0x)
29	00228P0012	1	Cotter pin (EBxxx0x)
30	00576P0030	1	Retaining ring
31	3129400000	1	Lever, manual drum lock
32	00229P0010	1	Roll pin
33	3164300000	1	Spring, manual drum lock
34	3129500000	1	Shaft, manual drum lock
35	M65720002	1	Guide plate
36	C03500231	2	M5 x 12 Pan head
37	M16300006	1	Worm gear
38	M67310002	1	Cable guide
39	C03500251	2	M6 x 12 Pan head
40	H13120015	1	Cable assembly, standard 2.0 m (EBxx00x)
	H13120020		Cable assembly, short 1.5 m (EBxxS0x)
	H13120016		Cable assembly, Bullard 2.0 m (EBxx03x)
	H13120021		Cable assembly, Bullard short 1.5 m (EBxxS3x)
41	M70780009	1	Cable anchor
42	00053P0201	1	#10-24 Set-screw
43	C00400100	1	Groove pin
44	H16510013	1	Upper Bullard hook assembly (EBxxx3x)
45	4963900000	1	Safety chain (not shown)
46	00580P0080	1	Snap ring for ratchet option (See Reference Number 5 above)
47	M83010023	2	Thrust washer (included with item #25)

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